



FEDERAL PROJECT MANAGEMENT UNIT
FEDERAL WATER MANAGEMENT CELL
MINISTRY OF NATIONAL
FOOD SECURITY & RESEARCH
ISLAMABAD - PAKISTAN

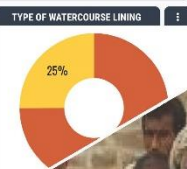
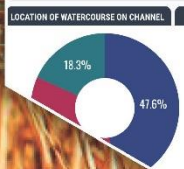
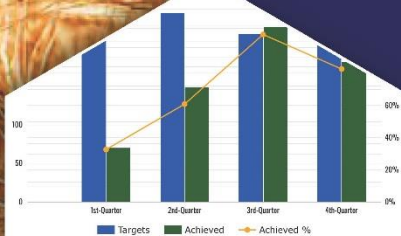
NATIONAL PROGRAM FOR IMPROVEMENT OF WATERCOURSES IN PAKISTAN PHASE-II: (NPIWC-II)

MONITORING, EVALUATION
AND IMPACT EVALUATION
CONSULTANTS



MONTHLY MONITORING REPORT

NOVEMBER 2021



A Joint Venture of
G3 Engineering Consultants (Pvt.) Ltd.
Lead Firm



In Association with S&S Associates



Federal Project Management Unit (FPMU)
Ministry of National Food Security & Research, Islamabad

Monitoring, Evaluation and Impact Evaluation (ME&IE) Consultants
For
National Program for Improvement of Watercourses in Pakistan Phase-II (NPIWC-II)

MONTHLY MONITORING REPORT
NOVEMBER 2021

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ACRONYMS

ADA	Assistant Director Agriculture
AES	Agriculture Extension Services
AF	Acre-Feet
AJK	Azad Jammu & Kashmir
AWPB	Annual Work Plan and Budget
AWPs	Annual Work Plans
BCR	Benefit Cost Ratio
CFT	Cubic Feet
CMS	Content Management System
CSRD	Center for Social Research and Development
DAES	Director Agriculture Extension Services
DDA	Deputy Director Agriculture
DGA	Director General Agriculture
DTL	Deputy Team Leader
EAs	Executing Agencies
EIRR	Economic Internal Rate of Return
FCR	Financial Completion Report
FCRs	Final Completion Reports
FMFSR	Framework for Federal Financial Management System
FOs	Farmers Organizations
FPMU	Federal Project Management Unit
FWMC	Federal Water Management Cell
GAP	Gender Action Plan
GB	Gilgit Baltistan
G3EC	G3 Engineering Consultants
GIS	Geographic Information System
HEIS	High Efficiency Irrigation System
IAS	Implementing Agencies
ICR	Interim Completion Report
ICT	Islamabad Capital Territory
IRR	Internal Rate of Return
ICT	Information & Communication Technology
JV	Joint Venture
KP	Khyber Pakhtunkhwa
LLL	Laser Land Leveler
LPS	Liter Per Second
M&E	Monitoring and Evaluation
MAF	Million Acre Feet
ME&IE	Monitoring, Evaluation and Impact Evaluation
MIS	Management Information System
MNFSR	Ministry of National Food Security and Research
MMR	Monthly Monitoring Report
MT	Monitoring Template
MTE	Mid-Term Evaluation
NESPAK	National Engineering Services Pakistan

NPC	National Project Coordinator
NPIWC	National Program for Improvement of Watercourses
NPV	Net Present Value
NWMC	National Water Management Consultants
OFWM	On Farm Water Management
PC-1	Planning Commission-(Form-One)
PDO	Project Development Objectives
PIC	Project Implementation Committee
PIES	Project Impact Evaluation Study
PQC	Pre-Qualification Committee
QM&ER	Quarterly Monitoring and Evaluation Report
RBM	Results-Based Management
RFT	Running Feet
RWD	Responsive Web Design
SFT	Square Feet
SOPs	Standardized Operating Procedures
SPSS	Statistical Package for Social Sciences (Software)
SSCs	Supply and Service Companies
TABs	Tablets
TL	Team Leader
TOR	Terms of Reference
TPV	Third Party Validation
TWRD	Tail-Water Recovery Ditch
WG	Women Group
WST	Water Storage Tank
WUAs	Water Users Associations

EXECUTIVE SUMMARY

The report in hand, “Monthly Monitoring Report for the month of November 2021” comprises of six chapters.

Chapter-1 describes the project introduction in detail. The Government of Pakistan is implementing a project entitled “National Program for Improvement of Watercourses in Pakistan Phase-II” (NPIWC-II) at a total cost of PKR 154,542.355 million (Umbrella PC-I including Sindh) over a period of 05 years. This project will cover Punjab, KP, Balochistan and Gilgit Baltistan, Azad Jammu & Kashmir as well as Islamabad Capital Territory (ICT). The proposed project Phase-II will be beneficial for the country.

The NPIWC-II comprises of four components to be implemented in Punjab, KP, Balochistan, GB, AJK, and ICT:

- i) C1: Organization of Water Users Associations
- ii) C2: Watercourse Improvements: 47,278 Nos.
- iii) C3: Construction of Water Storage Tanks: 14,932 Nos.
- iv) C4: Provision of Laser Land Leveling Units: 11,610 Nos.

Chapter-2 describes Scope of Work of the ME&IE Consultants for the project. Since the ME&IE Consultants are going to monitor implementation of all criteria set, procedures defined and timeline agreed for implementation of various components, all these are reproduced in this report as ready reference to devise / design M&E strategy, methodology, procedures for monitoring and impact assessments of the project interventions.

The monitoring strategy planned to be followed by ME&IE Consultants is briefly described in Table-2.1. The strategy aims to be finalized and implemented in close coordination with the client and active participation of the beneficiaries as well as the project stakeholders.

Chapter-3 covers the details about the Monthly Monitoring Report. This Eleventh (11th) Monthly Monitoring Report (MMR) covers the period from November 01, 2021 to November 30, 2021.

Chapter-4 of this report covers the activities completed during the reporting period are summarized below:

- Data collection from OFWM Department/NWMC for Baseline survey/regular monitoring
- Regular Monitoring of Interventions in the Field
- Data Collection of the Interventions in the Field
- Online Data Entry in Android Based Application.
- Baseline survey field visits plan
- Data acquisition from Client, Data entry, Data cleaning, Data processing and analysis
- Meetings of ME&IE Consultants with Stakeholders about Project Progress / Issues
- Monitoring / Data Collection on Social and Gender Component
- Finalization of NPIWC-II website
- Data collection of interventions in MIS/GIS database
- Dashboard of Project Interventions
- Data collection of interventions in MIS/GIS database
- Inauguration / Implementation of MIS Dashboard and Training of Client Staff AJK
- Success Story - Case Study on the Project Intervention

Chapter-5 of this report covers the details of ME&IE Consultants’ activities initiated during the Fourth Quarter (October 1, 2021 to December 31, 2021) are listed below.

- Field Activities
- ICT Assignment
- Coordination
- Deliverables

Time span detail is mentioned in the Tentative Work Plan. **Annex-A.**

Chapter-6: of this MMR describes issues / problems faced by the consultants during the reporting period of the assignment.

Table: -ES 1: Compliance Status of Tentative Work Plan (1st October to 31st December 2021)

No.	Activities Planned for the Reporting Quarter		Status	
1	Field Activities:			
	1.1	Regular Monitoring of Interventions in the Field	Complied	
	1.2	Data collection of the interventions in the field	Complied	
	1.3	Online data entry in android based application	Complied	
2	ICT Assignment:			
	2.1	Development of Website of NPIWC-II	Complied	
	2.3	Monitoring online data collection and Data entry	Complied	
	2.3	Monitoring Android based Mobile Application under implementation by field staff.	Complied	
	2.4	Data collection of interventions in MIS/GIS database	Complied	
	2.5	Designing of Dashboard of Project Interventions	Complied	
3	Coordination			
	3.1	Meetings of TL with NPC and OFWM Departments regarding Project Progress / Issues	Meetings conducted on regular basis	
	3.2	Meeting of DTLs with respective DTL of NWMC	Meetings conducted on regular basis	
4	Deliverables:			
	4.1	Monthly Monitoring Report (MMR)	9 th MMR (Sep 2021) 10 th MMR (Oct 2021) 11 th MMR (Nov 2021)	Submitted Submitted To be submitted in stipulated time
	4.2	Quarterly Monitoring & Evaluation Report (QM&ER)	Will be submitted in stipulated time	
	4.4	Baseline Survey Report Ph-2 (Draft)	Will be submitted in stipulated time	

CHAPTER-1: INTRODUCTION

1.1 PROJECT PROFILE

Project Name	National Program for Improvement of Watercourses in Pakistan Phase-II (NPIWC-II)
Project Areas	Punjab, KP, Balochistan, Gilgit Baltistan, Azad Jammu & Kashmir, and Islamabad Capital Territory (ICT)
Sponsoring Agency	Ministry of National Food Security & Research
Executing Agencies (EAs)	1. Federal Project Management Unit (FPMU), 2. DGA OFWM Punjab 3. DG OFWM KP 4. DGA OFWM Balochistan 5. Director Irrigation and Small Dams, AJK 6. Director WM, GB 7. Director Agriculture Extension Services (AES) ICT
Project Period	5 Year (2019-2024)
Total Project Cost	154,542.355 million (Umbrella PC-1, including Sindh)
ME&IE Consultancy Period	4 year
ME&IE Consultant:	JV of G3 Engineering Consultants (Pvt.) Ltd., EASE PAK Engineering services (Pvt.) Ltd., Centre for Social Research and Development (CSR) and ADA Consultants Inc. Canada
ME&IE Consultant Mobilized	November 20, 2020

1.2 PROJECT DESCRIPTION

1.2.1 Project Development Objectives

The Project Development Objectives (PDOs) are to improve irrigation water management at tertiary and field levels in Pakistan.

1.2.2 Project Objectives – General & Quantitative

1) General Objectives:

The Project aims to replicate the success achieved during the NPIWC Phase-I and further improve the findings of the Project Impact Evaluation Study (PIES). The broad objectives of the project are as under:

- Social mobilization through capacity building of WUAs/ FOs,
- Minimization of conveyance and field application losses,
- Reduction in Water Logging and salinity,
- Equity in water distribution,
- Reduction in water disputes/thefts/litigation,
- Motivation/participation of farmers,
- Poverty reduction through employment generation,
- Increase in crops yield/sufficiency in food.

2) Quantitative Objectives:

The quantitative objectives of the Project are as under:

Project outputs

- Mobilization through capacity building of Water Users Associations/Farmers Organizations in improved water management techniques and their registration under On-Farm Water Management and Water User Associations Ordinance [Act] 1981 and organization of 47,278 WUAs.
- Reconstruction/renovation and remodeling of 47,278 watercourses, involving complete earthen renovation, partial lining of critical reaches (50% of the total watercourse length as decided in the high-level meeting), and installation of water control structures. It is expected to save around 5.82 MAF per annum (approx. saving of 123 acre-feet (AF) per watercourse per annum).
- Construction of 14,932 water storage tanks with 60% subsidy.
- Provision of 11,610 Laser Land Levelers at 50% cost sharing, with the expectation to save about 50% irrigation water for wheat and about 68% of irrigation water for paddy.

Project impacts

- Reduction in Water Logging and salinity in

- project areas to the extent of 10%.
- vi) Cropping intensity is expected to increase by 5-20%.
 - vii) Crop's yield is estimated to increase by 10-15%.
 - viii) Equity in water distribution increased by about 30%.
 - ix) Reduction in water disputes/thefts and litigation amongst the Farmers over water distribution by about 80%.
 - x) Help poverty reduction through generation of employment.
 - xi) Self-sufficiency in food through utilization of water saved for edible oil seed production.

Project indirect benefits to industry/economic activities

- xii) Cement industry, bricks Killen, Precast Structures Industry and other related industries' production will pick up.

Awareness support to farmers

- xiii) Motivating farmers through an awareness campaign for watercourse improvement.
- xiv) Providing technical material to farmers for optimal utilization of water resources in the shape of technical manual and operational guidelines.

1.2.3 Project Beneficiaries

Majority of the direct project beneficiaries constitute the number of farmers (owners as well as tenants) growing crops and orchards on the watercourses improved under NPIWC-II. Assuming 35 farmers on each watercourse, the total number of the farmers benefiting from the activity comes to 1.655 million. The same number will benefit due to Water Users' Associations (WUAs) in terms of cooperative management of irrigation water. Moreover, 14,932 will directly benefit from Water Storage Tanks and 11,620 as recipients of Laser Land Leveling Units. Thus, total gross direct beneficiaries are expected to be around 3.336 million households. However, net beneficiaries are expected to be 1.668 million.

Taking family size at five, total net population benefitting is expected to be 8.34 million people.

1.2.4 Project Components

The NPIWC-II comprises four components.

C1: ORGANIZATION OF WATER USERS ASSOCIATIONS:

Establishment/ reactivation of Water Users Associations (WUAs) through community driven implementation approach.

- i) Provide right of way for constructing watercourse,
- ii) Arrange skilled and unskilled labour required for reconstruction / maintenance of earthen water channel, installation of water control structures, and lining of critical reaches,
- iii) Procure construction materials for carrying out civil works,
- iv) Settle matters of disputes amongst the water users in respect of channel alignment, fixation of Naccas, distribution of work, etc.
- v) Make alternate arrangements for conveyance of water during execution of improvement works,
- vi) Carry out civil works in accordance with standards and specifications under the supervision of OFWM field staff,
- vii) Regularly undertake O&M of improved watercourses after its construction.

C2: WATERCOURSE IMPROVEMENTS:

47,278 Watercourses are planned to be improved /reconstructed and lined.

- i) New watercourses that are not yet improved under earlier programs / projects,
- ii) Reconstruction of more than 20 years old watercourses that outlived their economic / useful life,
- iii) Additional lining up to 50% of already improved watercourses.

C3: CONSTRUCTION OF WATER STORAGE TANKS:

Construction of 14,932 Water Storage Tanks (WSTs)

- i) Store water during the rainy season and times of no use in the commands of perennial / non-perennial canals for subsequent irrigations at the critical crop growth stages,
- ii) Provide flexibility for storage of plentiful canal and rainfall runoff water for its more expedient use subsequently,
- iii) Collect, store and filter water from:
 - Small Dams, Springs, Streams, Nallas etc.
 - Rainfall runoff over agricultural catchment during rainy season
 - Tube-wells and dug wells of low flows
 - Tail-waters from agricultural fields

- iv) Regulate the flows so that it can be used efficiently when needed at large flow rates.

C4: PROVISION OF LASER LAND LEVELING UNITS:

Provision of 11,610 Laser Land Leveling units to the farmers; the component will strengthen LASER land leveling services in the country through provision of

Laser Land Leveling Units to farmers/service providers on 50% subsidized rates.

1.2.5 Project Targets

Project aims at achieving the targets (**Figure-1.1**) for 5 years starting from year 2019-20 to 2023-24. The targets for each province/Zone (excluding Sindh) are given below **Figure-1.2**.

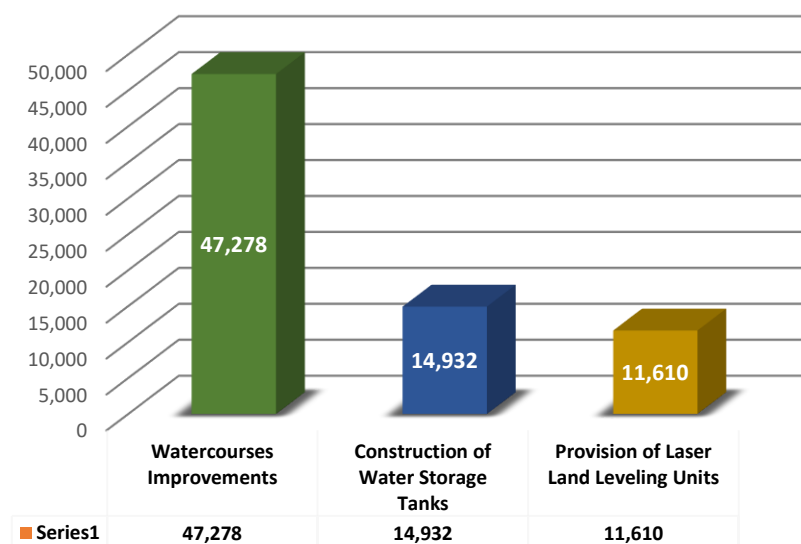


Figure 1.1 Pakistan Targets

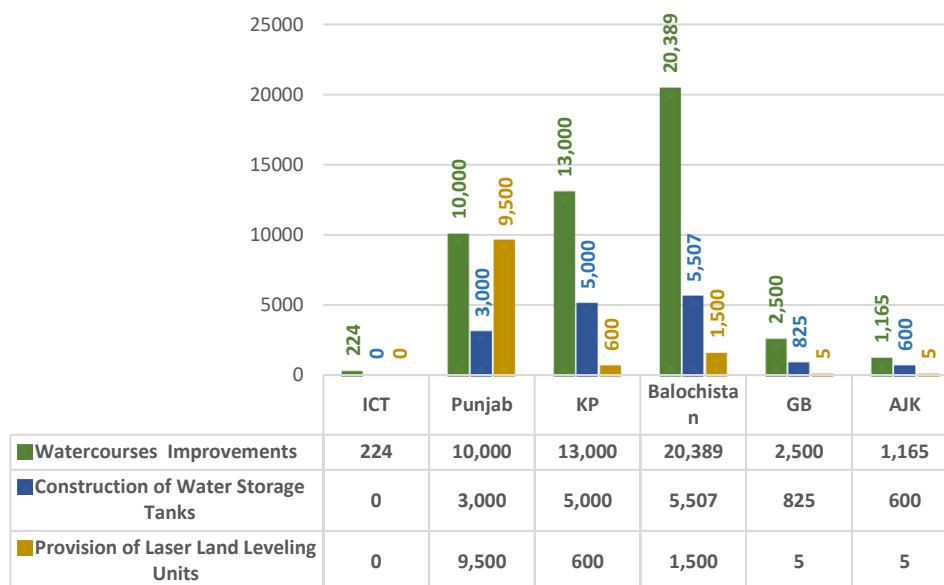


Figure 1.2: Zonal Target

CHAPTER 2: SCOPE AND SERVICES OF ME&IE CONSULTANTS

The ME&IE Consultants services are planned to be provided through a multi-disciplinary team of qualified professionals. All firms in the joint venture have rich experience in the field of monitoring and evaluations. The team deputed for this task in the project comprises highly qualified professionals having long practical experience of such projects earlier launched in Pakistan. The consultant will develop a State-of-the-Art Management Information System (MIS) with GIS focuses for NPIWC-II to monitor progress on project interventions and to carry out an effective monitoring process. The MIS will help decision makers to make informed the decisions.

2.1 OBJECTIVES

The objective of ME&IE Consultant's services is to carry out monitoring and evaluation of project impacts to ensure achievement of project development objectives.

2.2 SCOPE OF THE SERVICES

The ME&IE Consultants will be responsible for monitoring, evaluation and impact evaluation, and in this context will carry out the following activities:

- i) Undertake baseline, midline and endline surveys for the project activities / interventions in all the project areas,
- ii) Develop monitoring strategy, framework and Result-Based Monitoring (RBM) indicators,
- iii) Preparation of monthly, quarterly and annual monitoring, evaluation and validation reports of the project activities,
- iv) Assessing the water saving per annum on watercourses, water storage tanks and field levels as well as aggregate due to the project interventions,
- v) Assessing the improvement in water availability due to the provision of conveyance system,
- vi) Assessing the economic benefits to the agriculture in terms of changes in yields, irrigated area, cropping pattern, cropping intensity, farm income and employment in command area of watercourses and water storage tanks,
- vii) Assessing the extent of community mobilization, financial and administrative

sustainability of water users' associations and ensuring the maintenance of watercourses, water storage tanks and laser land Levelers,

- viii) Economic impact of project interventions,
- ix) Carry out the impact evaluation of the project intervention on the economy and stakeholders,
- x) Develop a website containing information on facilities and services, applications, procedures, watercourses, water storage tanks and laser Levelers database, etc. (while the project staff will maintain the website),
- xi) Provide technical support for the development of a custom-designed mobile application (Android Based) to capture on-site project progress and geo-tagged photos. It should be synchronized with the central MIS/GIS database and application for instant reporting and feedback to the management. The said requirement is based on the following functional features:

- Development of a GIS database with all spatial layers related to activities being undertaken under the project
- Give technical assistance for up-dation/up-gradation of water management GIS database.
- Development of web-based GIS application as a dashboard interface for comprehensive representation of all spatial and tabular information: custom designed web GIS application be developed for large LED screens, should be self-operative and represent project data on multiple layouts of application interface.
- Development of a MIS application as an integral part of web GIS to maintain information on facilities and services, applications, procedures, watercourses database, etc.
- Development of a custom designed mobile application (Android) to capture on-site project progress, geo-tagged photos; should be synchronized with the central MIS/GIS database and application for instant reporting and feedback to the management.
- Application should generate custom designed reports and analysis as per user-defined requirements.
- Application should generate alerts (SMS, email, web-notifications) to the user on the non-conformance of project's key indicators; the application should have the

provision to custom define alerts levels and desired notifications.

2.3 MONITORING STRATEGY

The monitoring strategy planned to be followed by ME&IE Consultants is briefly described in the following Table-2.1. However, detailed methodology

and procedures to carry out the Monitoring, Evaluations and Impact Evaluations of the project interventions were explained in Chapter 6 of Inception Report. The strategy aims to be finalized and implemented in close coordination with the client and active participation of the beneficiaries as well as the project stakeholders.

Table 2. 1: Monitoring Strategy for ME&IE Activities

Sr. No.	Monitoring Activity	ME&IE Team Responsible	Monitoring Strategy
1	Baseline, midline and endline surveys	Team Leader, Socio-Economic Expert, Agricultural Economist and Deputy Team Leader of the respective province/unit.	<ul style="list-style-type: none"> Baseline and impact surveys will be carried out on sample basis. Data will be collected by field teams on pre-designed data collection tools through an android application on TABs. Baseline and impact surveys will be carried out in phases as target watercourses are not preselected. Baseline will be carried out before the intervention and the impact one year (two crop seasons) after the completion of the intervention. The midterm study will review the project progress at middle of the project implementation The endline study will assess the impact of the project interventions.
2	Reporting	All core team members	<p>Following periodic reports will be prepared and submitted:</p> <ul style="list-style-type: none"> Draft Inception Report 45 days after the agreement, Final Inception Report one week after the issuance of comments by the client on the draft, Monthly Monitoring Report on 10th of following month, Quarterly Monitoring Report on 10th of the first month of the following quarter, Annual Monitoring and Evaluation Report during first month of the following year, Baseline Survey Reports (in three phases), First Phase Baseline Survey report will be submitted within the four months after the start of the assignment i.e., Submission of final inception report/Beginning of field activities. Impact Survey Reports (in phases) – two months after the data collection completion for the impact phase, Midline report in the middle of the assignment, Endline Report at the end of endline Survey, Draft Assignment completion Report at completion of the physical works, Final Assignment Completion Report at completion of works and financial transactions. It will also include the full economic benefit of the project (NPIWC-II) on agriculture sector as well as on the GDP of Pakistan, Special Reports, as and when asked by the client.
3	Water saving assessment	Irrigation Agronomist, Field Team/	<p>Water Saving on Watercourses:</p> <ul style="list-style-type: none"> Water flow will be measured on sample watercourses selected for the baseline and impact surveys

		Engineers	<ul style="list-style-type: none"> The flow will be measured at four points of the selected watercourses: close to water outlet, head reach, middle reach and tail reach. The measurements will be done through current meters. Based on water savings on sample watercourses, total water savings will be estimated for all project watercourses. The savings will be reported per watercourse, per annum and aggregate for the project in LPS and Acre feet.
			<p>Water Savings on WSTs</p> <ul style="list-style-type: none"> Since WSTs will be filled and emptied on a continuous basis, the water savings will be assessed on the basis of water pumped from the tank to irrigate the fields. The assessment will be done either by readings on the pump gauge or periodically interviewing the farmer. Based on water savings on sample WSTs, total water savings will be estimated for all project WSTs. The savings will be reported per WST, per annum and aggregate for the project in LPS and in Acre feet. <p>Water savings due to Laser Land Leveling</p> <ul style="list-style-type: none"> Water savings at field level will be assessed through farmers' interviews. The impact survey form will include questions to be asked from the farmers who got their land leveled: <ul style="list-style-type: none"> ➤ In how much time an acre was irrigated before watercourse improvement and land leveling ➤ In how much time an acre is irrigated after watercourse improvement with land leveling <p>The difference will be water saving due to laser land leveling</p>
			Based on water savings on sample LLL units, total water savings will be estimated for all project LLL units. The savings will be reported per LLL unit, per annum and aggregate for the project in LPS and in Acre feet.
4	Community mobilization	Social and Gender Specialist and Socio-Economic Expert	<p>The extent of community mobilization will be assessed by investigating whether:</p> <ul style="list-style-type: none"> WUAs is functional Holds regular meetings and keep record of them Makes decisions democratically The participation in the organization is voluntary It is financially and administratively sustainable Takes steps and ensures maintenance of watercourses, WSTs and laser land leveler
5	Economic benefits assessment for agriculture	Team Leader, Socio- Economist and Agricultural Economist	<ul style="list-style-type: none"> As indicated at serial No. 1, Agriculture data will be collected before (baseline) and after (impact) the watercourse improvement and WSTs construction. In both the surveys same forms will be used and same sampled farmers will be interviewed Data on variables such as crop yields, irrigated area, cropping pattern, cropping intensity, farm income and employment will be collected and analyzed The difference between before and after situations minus natural growth will be assumed as economic benefits to the agriculture

6	Impact evaluation-on the economy	Team Leader, Agricultural Economist and Socio-Economic Expert	<ul style="list-style-type: none"> The results of the baseline and impact surveys will be used to quantify impact on the economy Additional food produced due to the project will be estimated. It is benefit towards food security Project costs and benefits will be compared in economic and financial terms to carry out economic and financial analysis. Parameters like IRR, NPV and BCR will be estimated.
7	Impact evaluation-on the stakeholders	Team Leader, Agricultural Economist and Socio-Economic Expert	<ul style="list-style-type: none"> Analysis as in serial 6 will be carried out with reference to various stakeholders, like community, government, farmers, etc.
8	Spot checking	Team Leader, Deputy Team Leaders & Field teams/Engineers.	During the field visits for WUAs baselines impacts of Watercourses, WSTs and laser units, the interventions will be spot checked for quality of construction, material, functioning and beneficiaries' satisfaction etc.
9	Process monitoring	Field Teams of Agriculture Deptt., Project Consultants, ME&IE Consultants & ICT/Technology Specialist	<ul style="list-style-type: none"> The process data for all the interventions will be fed to the MIS/GIS database. Client's field staff and field teams of consultants will furnish data of their activities. The ME&IE will assist in developing mobile application for this purpose From this data reports will be generated for process monitoring All interventions will be fully (100%) covered.
10	Project website and MIS/GIS dashboard development	ICT / Technology Specialist (Including all other core team staff will also coordinate in completing data for the MIS/GIS	<ul style="list-style-type: none"> The State-of-the-art MIS / Progress Monitoring Model will be developed for NPIWC-II. Customized forms will be developed to collect data from the implementing teams on-site for progress monitoring These forms will be made available to the teams on smart phones through an android application The teams will be adequately trained to use the application Data on physical and financial stages with dates will be fed to the system for process monitoring GIS coordinates for watercourses, WSTs, laser units (if available) and WUAs offices will be uploaded to the system and could be viewed / reached by the management online The system will be maintained on GOOGLE server so that it is accessible by the management from anywhere in Pakistan and abroad Custom reports will be possible as the user demands / desires The results could be displayed on small as well as large screens.
11	Development of Android based application	ICT / Technology Specialist	All the data collection forms / tools will be executed through customized developed Android based applications accessible with smart phones / TABs.

2.4 FRAMEWORK AND RESULTS-BASED MONITORING (RBM) INDICATORS

The framework and Results-Based Monitoring (RBM) Indicators are identified in Table-2.2 of Inception Report. The indicators will be further enhanced and

refined in consultation with the client as well as the stakeholders.

They will also get improved as the project implementation progresses as in the light of real and on the ground situations.

CHAPTER 3: MONTHLY MONITORING REPORT

3.1 INTRODUCTION

Monthly Monitoring Report (MMR) explains the understanding towards all activities to be carried out as per TORs of ME&IE assignment and their completion within stipulated time frame.

3.2 OBJECTIVE OF MONTHLY MONITORING REPORT

The Main objective of the Monthly Monitoring Report is to update the Client about the activities carried out by the ME&IE Consultants during the reporting period. Reporting is an integral part of monitoring and evaluation framework.

3.3 REPORTING PERIOD

This Eleventh Monthly Monitoring Report (MMR) covers the period from November 01, 2021 to November 30, 2021.

The Report In-hand provides the progress made in various activities relating to the accomplishment of Monitoring activities of project interventions e.g., field monitoring activities, ICT assignments etc. This report also describes all activities to be carried out as per quarterly work plan.

CHAPTER 4: ACTIVITIES DURING THE REPORTING PERIOD

During the reporting month Consultants carried out different field as well as in-house activities related to ME&IE.

4.1 REGULAR MONITORING OF INTERVENTIONS IN THE FIELD

The routine monitoring is containing brief analysis of the results; calculating achievement rates and establishing trends, relevant findings that may help or constraint the future data collection activities in the established periods and, if appropriate, propose specific solutions assessing the advantages and disadvantages of each.

The regular monitoring assignments under NPIWC-II are comprised of input-output and process as defined in the Annual Work Plan / Budget and tracking of the outcomes indicators. Regular routine monitoring will look at the extent to which the proposed project activities are being implemented as planned.

Monitoring activities carried out by the ME&IE consultants during the reporting period are summarized below.

4.1.1 Regular Monitoring of Interventions in the Field - ICT Zone

Dr. Umar Farooq Deputy Team Leader ME&IE ICT Zone regularly tried to engage ME&IE consultants with On Farm Water Management Department for a close and regular coordination. However, due to unavoidable circumstances this meeting was carried out on 23rd November 2021.

During the current reporting month it was planned to cover Nine (9) schemes of ICT and collect maximum data for Baseline at ICT level. It was telephonically discussed with Water Management team on 10th November but again it was communicated from them that the field officer will not be available from 13 to 21 November 2021 and was suggested to shift the date from 23rd November onward for the field visits.

The ME&IE team visited the water management office on 23rd November and it was decided to visit

one scheme of Mr. Raja Zaheer Ahmad to cover a case study.

Again it was told by DD that they are busy in selection of new schemes on ground as they have been given target of 13 watercourses for current quarter from NPC. He agreed to send Mr. Mubeen Ahmad Water Management Officer on 25th November with ME&IE Team for case study.

4.1.2 Regular Monitoring of Interventions in the Field Punjab Zone

Monitoring / Visit of various interventions, in the Field is one of the important regular feature of field teams. The Field activities Start from collecting / reviewing basic data of an interventions viz watercourse improvement, Water User Association, Water Storage Tank and Laser Land Leveler. The ME&IE consultants have carried out selection of interventions as per prescribed criteria in the respective area on each sub zone.

4.1.3 Regular Monitoring of Interventions in the Field KP - Zone

KP Zonal office team remained engaged in different activities including routine office activities. However, filed work remained suspended during the reporting month in KP Zone.

4.1.4 Regular Monitoring of Interventions in the Field - Balochistan Zone

The Balochistan ME&IE Consultants' team carried out several activities during the reporting month i.e., November 2021. Detail of activities completed by Balochistan Zonal team is listed below:

- i. Regular Monitoring / Spot Check Field Visits.
- ii. Success Story at District Jaffarabad.
- iii. Meetings with OFWM officials and other stakeholders.
- iv. Water Flow Measurements
- v. Planning for Baseline Survey Phase-II of works (F.Y. 2021-22).

4.1.4.1 Detail of Field Monitoring Visits - Balochistan Zone

The schemes of F.Y. 2019-20 were monitored in the current month to evaluate the impact of the project interventions.

During the current month field teams visited 04 districts of Balochistan i.e., Naseerabad, Sohbatpur, Mastung and Killa Saifullah.

Team Composition:

The Balochistan Field Team was comprised of 03 teams as listed below:

Team – 1

1. Mr. Tariq Khoso, M&E Expert
2. Mr. Saleem Abro, M&E Expert

Team – 2

1. Mr. Naseeb Jan, M&E Expert
2. Mr. Qaisar Tareen, M&E Officer

Team -3

1. Mr. Manzoor Kasi, M&E Expert
2. Mr. Hamza Qureshi, M&E Officer
3. Ms. Mahgul Baloch, M&E Officer

The field teams-1 visited 02 districts i.e. Naseerabad and Sohbatpur and monitored 04 Watercourses of F.Y. 2019-20. The team-3 visited 02 districts Mastung and Killa Saifullah. Monitoring of total 07 watercourses carried out in 04 districts and 04 activities of water flow measurement were also carried out.

4.2 DATA COLLECTION OF THE INTERVENTION IN THE FIELD

ME&IE Consultants of all the Zonal offices remained engaged in different field activities as well as in-house project activities during the reporting month. Detail of field monitoring / data collections is given below.

4.2.1 Regular Monitoring of Interventions in the Field - ICT Zone

Monitoring activities infield remained suspended in the ICT Zone.

4.2.2 Regular Monitoring of Interventions in the Field –Punjab Zone

For the purpose of facilitation of regular monitoring and other field activities like baseline survey, interview of laser service provider and user of such service, Punjab zone has been sub-divided into three

sub-zones. Allocated of districts in each sub zones are as shown in table below.

Allocation of Districts in Each Sub-Zone

Subzone – 1	Subzone – 2	Subzone – 3
Districts		
Faisalabad	Gujranwala	Bahawalpur
Jhang	Hafizabad	R. Y Khan
Chiniot	Narowal	Bahawalnagar
T.T. Singh	Sialkot	D. G. Khan
Sahiwal	M. B. Din	Muzaffargarh
Pakpattan	Gujrat	Layyah
Okara	Sargodha	Rajanpur
Lahore	Khushab	Multan
Sheikhupura	Bhakkar	Khanewal
Nankana Sahib	Mianwali	Vehari
Kasur		Lodhran

Rawalpindi is excluded from the list because it has only one intervention i.e., Water Storage Tanks Administratively this division is put under field team of zonal office Islamabad. The brief description of data collected for watercourses is as under.

1. Lahore City

WC No	75900/L
Location	Chah Tanoli
Name of chairman	Ghulam Mustafa
No of beneficiaries	33
Area served	520
Lining length	249
Status	FRC

2. Tehsil Lahore Cantt

WC No	294736/R
Location	Bhekewal
Name of chairman	Dr. Abdul Nasir
No of beneficiaries	5
Area served	131
Lining length	1380 M
Status	ICR-I

4.2.3 Regular Monitoring of Interventions in the Field –KP Zone

All the three field teams of KP Zone were fully engaged in digging out of Physical and Financial data of the WCs and water storage tanks from the files provided by the office of the Directorate of OFWM

KP for the year 2019-2020 & 2020-2021 to the M&E consultants. The data collected from these files was handed over to ICT section to upload in the dashboard of the project online data management system.

4.2.4 Regular Monitoring /Field Visits Details - Balochistan Zone

Detail of Field Activities carried out by Balochistan field teams is given below.

4.2.4.1 Field Visits detail of Regular Monitoring / Spot Checking - Balochistan Zone

Team – 3: Monitored by Manzoor Kasi, M&E Expert, and Mah Gul Noor & Hamza H. Qureshi, M&E Officer

1) Field Visit Date – 24th November, 2021

Scheme:	Watercourse
Name of Farmer:	Muhammad Alim
Name of village:	Koshak
Union council:	Muani
Chairman WUA:	Muhammad Alim
District:	Mastung
Tehsil	Mastung
Coordinates	N 29.90216, E 66.82332
Source of irrigation:	Tube Well
The total length of the watercourse:	3051 rft.
Estimated length of lining:	2067 rft.
Command area of the watercourse:	67 Acres
No of beneficiaries:	01
Quality of Work	Good
Reduction in Water Logging and salinity	No water logging or salinity in that area
Cropping intensity increased	N/A
Crops yield increased	Yes
Equity in water distribution increased	Yes
Reduction in water disputes/thefts	Yes
Poverty reduction through generation of employment.	Yes
Cement industry,	Not observed

bricks Killen, Precast Structures Industry and other related industries' production is pick up.

Overall feedback of Farmer / Beneficiary

Very much satisfied

General Observations

- Farm was Well Maintained and planned.
- Terrace structure farming was adopted by the farmer
- The plants of grape that was used were of improved variety.
- The farm and variety of the plants were improved after the Provision of this Watercourse.
- Varieties of grapes observed in this farm were: 1. Red Globe, 2. Thompson, 3. Black Crimson, 4. Shude Khani, 5. Aita.



Spot Checking and view of Terrace Structure Farming.

2) Field Visit Date – 27th November, 2021

Scheme:	Watercourse
Name of Farmer:	Muhammad Younus
Name of village:	Sira Bazal
Union council:	Kan Mehtarzai
Chairman WUA:	Muhammad Younus
District:	Killa Saifullah
Tehsil	Kan Mehtarzai
Coordinates	N 30.71417, E 67.49337
Source of irrigation:	Tube Well
Total length of watercourse:	2679.59 rft.
Estimated length of lining:	2427.94
Command area of watercourse:	12 Acres
No of beneficiaries:	1
Quality of Work	Good
Reduction in Water Logging and salinity	No water logging or salinity in that area
Cropping intensity increased	Increased about 5 Acres.
Crops yield increased	Increased about 7%.
Equity in water distribution increased	Yes
Reduction in water disputes/thefts	Yes
Poverty reduction through the generation of employment.	Yes, The farmer hired 2 additional tenants after the provision of this WC
Cement industry, bricks Killen, Precast Structures Industry and other related industries' production is pick up.	Not observed
Overall feedback of Farmer / Beneficiary	<ul style="list-style-type: none"> Farmer requested that more schemes like WC or PVC may be provided because this will increase the culturable land, number of orchards and crops. Conveyance time and water losses have been

	decreased by a significant amount.
General Observations	<ul style="list-style-type: none"> Farmer had problem due to non-availability of electricity.



Measuring the watercourse along with Farmer

Team – 3: Monitored by Rizwan Ahmed, DTL Baluchistan, Manzoor Kasi, M&E Expert & Hamza H. Qureshi, M&E Officer

3) Field Visit Date – 27th November, 2021

Scheme:	Watercourse
Name of Farmer:	Mulla Sadiq
Name of village:	Kachhi Bagh
Union council:	Kan Mehtarzai
Chairman WUA:	Mulla Sadiq
District:	Killa Saifullah
Tehsil	Kan Mehtarzai
Coordinates	N 30.74587, E 67.52211
Source of irrigation:	Karez (underground source)

Total length of watercourse:	6805.58 rft.
Estimated length of lining:	2805 rft.
Command area of watercourse:	15 Acres.
No of beneficiaries:	1
Quality of Work	Good
Reduction in Water Logging and salinity	No water logging or salinity in that area
Cropping intensity increased	Increased about 3 acres.
Crops yield increased	Increased about 5 to 7%
Equity in water distribution increased	Yes
Reduction in water disputes/thefts	Yes
Poverty reduction through generation of employment.	The farmer hired 5 additional tenants after provision of this WC
Cement industry, bricks Killen, Precast Structures Industry and other related industries' production is pick up.	
Overall feedback of Farmer / Beneficiary	<ul style="list-style-type: none"> Farmer was requesting Additional lining for the WC in order to improve and increase the cropping pattern and CCA.
General Observations	<ul style="list-style-type: none"> This WC was community based and the no. of beneficiaries were 20, with each having command area of 15-20 acres. The length of Katcha WC exceeds from 7000 rft. Additional lining for this Community based WC can increase the Production.



View of WC and command area.

1.1 Field Visits detail of Regular Monitoring / Spot Checking - Naseer Abad Zone

Team – 3: Monitored by Mohammad Tariq, M&E Expert and Saleem Ahmed M&E Officer

1) Field Visit Date – 26th Nov, 2021

Scheme:	Watercourse
Name of Farmer:	Murad Bux
Name of village:	Taj Mohammad Lehri
Union council:	Kharoos Wah
Chairman WUA:	Murad Bux
District:	Naseerabad
Tehsil	Tambo
Coordinates	N,28,43127467.977417 4 E,59912009825086.5.0
Source of irrigation:	Canal
Total length of watercourse:	152 Meters
Estimated length of lining:	409 Meters
Command area of watercourse:	50 Acres
No of beneficiaries:	8
Year of construction:	2019-20
Cost of Construction of	863,878

WC:	
Quality of Work	Bad
Reduction in Water Logging and salinity	No Waterlogging or salinity in this area.
Cropping intensity increased	8 Acres Increased
Crops yield increased	Yes
Equity in water distribution increased	Yes
Reduction in water disputes/thefts	Yes
Poverty reduction through generation of employment.	Yes
Cement industry, bricks Killen, Precast Structures Industry and other related industries' production is pick up.	No
Overall feedback of Farmer / Beneficiary	<ul style="list-style-type: none"> Water saving increased and conveyance loss decreased in their land Increased cropping of vegetables. Medi station and Soil and water testing center should be provided. Facing difficulties due to electricity shortage. Almost 16-20 hours load Shedding in this area.
General Observations	<ul style="list-style-type: none"> Capacity building campaigns for Framers to be organized. Former should be asked to maintain WC properly as per agreement with department. Cracks found in Watercourse Backfilling filling

	was done properly.
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Measuring the WC - Cracks in Watercourse

2) Field Visit Date – 26th November 2021

Scheme:	Watercourse
Name of Farmer:	Naveed Ahmed
Name of village:	Taj Mohammad
Union council:	Kharos Wah
Chairman WUA:	Naveed Ahmed
District:	Naseerabad
Tehsil	Tamboo
Coordinates	N 28.4302506, E 67.9793146,
Source of irrigation:	Canal
Total length of watercourse:	350.0 Meters
Estimated length of lining:	410.0 Meters
Command area of watercourse:	70 Acres
No of beneficiaries:	7
Starting date:	N/A
Construction date:	2019-20

Cost of Construction of WC:	2,825,815
Quality of Work	Bad
Reduction in Water Logging and salinity	No waterlogging or salinity in this area.
Cropping intensity increased	12 Acres increased
Crops yield increased	Yes
Equity in water distribution increased	Yes
Reduction in water disputes/thefts	Yes
Poverty reduction through generation of employment.	Yes
Cement industry, bricks Killen, Precast Structures Industry and other related industries' production is pick up.	No
Overall feedback of Farmer / Beneficiary	Satisfied with the benefits of WC
General Observations	<ul style="list-style-type: none"> Nakkas were not properly install, due to this reason, farmer was using mud bags. The quality of plaster was not good Backfilling was not done properly. The farmer should be asked by the department to maintain the WC properly.



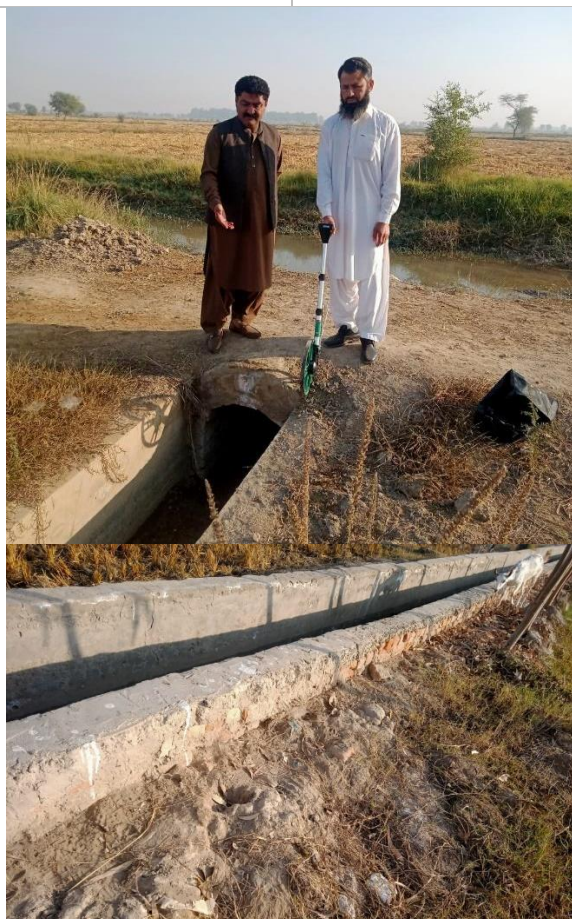
View of mud bag using in Nakka

3) Field Visit Date – 27th October, 2021

Scheme:	Watercourse
Name of Farmer:	Sheeraz Ali
Name of village:	Mohammad Ali
Union council:	Ghuri
Chairman WUA:	Sheraz Ali
District:	Sohbat Pur
Tehsil	Faridabad
Coordinates	N 28.4312874 E 67.9774174
Source of irrigation:	Canal
Total length of watercourse:	540.0 Meters
Estimated length of lining:	357.3 Meters
Command area of watercourse:	80 Acres
No of beneficiaries:	8
Starting date:	N/A
Construction Year:	2019-20
Cost of Construction of WC:	2,825,815
Quality of Work	Bad
Reduction in Water Logging and salinity	No waterlogging or salinity in this area.
Cropping intensity increased	10 Acres Increased
Crops yield increased	Yes
Equity in water distribution increased	Yes



Reduction in water disputes/thefts	Yes
Poverty reduction through generation of employment.	Yes
Cement industry, bricks Killen, Precast Structures Industry and other related industries' production is pick up.	No
Overall feedback of Farmer / Beneficiary	Happy with this intervention
General Observations	<ul style="list-style-type: none"> Watercourse was not properly maintained by the farmer due to which, back filling was missing in various points. Quality of plaster was not good.



Measuring the WC – Improper backfilling of WC

4) Field Visit Date – 27th November, 2021

Scheme:	Watercourse
Name of Farmer:	Abdul Bari
Name of village:	Haji Dildar Khan
Union council:	Dirghi
Chairman WUA:	Abdul Bari
District:	Sohbat Pur
Tehsil:	Sohbat Pur
Coordinates	N 28.5357993, E 68.4845778,
Source of irrigation:	Canal
Total length of watercourse:	370.5 Meters
Estimated length of lining:	603.0 Meters
Command area of watercourse:	90 Acres
No of beneficiaries:	11
Construction Year:	2019,20
Cost of Construction of WC:	2,825,815
Quality of Work	Satisfactory
Reduction in Water Logging and salinity	No waterlogging or salinity in this area.
Cropping intensity increased	14 Acres increased
Crops yield increased	Yes
Equity in water distribution increased	Yes
Reduction in water disputes/thefts	Yes
Poverty reduction through generation of employment.	Yes
Cement industry, bricks Killen, Precast Structures Industry and other related industries' production is pick up.	No
Overall feedback of Farmer / Beneficiary	Happy and satisfied
General Observations	<ul style="list-style-type: none"> Backfilling was done properly Farmer should asked to keep maintain the WC properly.



View of Monitoring Visit of Abdul Bari WC UC Dirghi Dist
Sohbatpur

4.2.4.2 Water Flow Measurement

Water Flow measurements are the key input for evaluation as many outputs depend directly or indirectly on these measurements.

During the current month ME&IE Consultants took the Water Flow Measurement of four districts i.e., Naseerabad, Sohbatpur, Mastung and Killa Saifullah. Watercourse improvement is a major intervention of the project. The outcome of the output will be reduced by conveyance losses and water saving up to 15%. This outcome will be measured by ME&IE consultants in a separate activity under which water flow measurements will be taken before and after the improvement. The impact of this outcome is expected to be an increase in cropping intensities, increase in crops yields, farm income, and employment.

The readings have been taken at 3 points of the watercourses as under:

- Start (10 Meter away from Mogha)
- Mid (50% Length of WC)
- End (75% Length of WC)

The source of water in two districts i.e., Naseerabad and Sohbatpur was Canal while in other two districts i.e., Mastung and Killa Saifullah source was Tube well.

The detail of sites visited and water flow readings are given below while:

District	Points	Water Flow Cusecs
Dist: Naseerabad	Start (10 Meter away from Mogha)	6.701737
UC: Quba Sher Khan Sharqi	Mid (50% Length of WC)	4.523226
Village: Ejaz ahmed Bugti	End (75% Length of WC)	4.005699



Water Flow measurement by ME&IE Consultants

District	Points	Water Flow Cusecs
Dist: Sohbatpur	Start (10 Meter away from Mogha)	5.561515
UC: Faridabad	Mid (50% Length of WC)	5.557896
Village: Ghulam Haider	End (75% Length of WC)	9.36072



Water Flow measurement by ME&IE Consultants

District	Points	Water Flow Cusecs
Dist: Mastung	Start (10 Meter away from Mogha)	2.864639
UC: Dasht	Mid (50% Length of WC)	1.564945
Village: Mammani	End (75% Length of WC)	1.386905



Water Flow measurement by ME&IE Consultants

District	Points	Water Flow Cusecs
Killa Saifullah	Start (10 Meter away from Mogha)	1.188775
UC: Kan Mehtarzai	Mid (50% Length of WC)	1.097212
Machhli Bagh	End (75% Length of WC)	0.877715



Water Flow measurement by ME&IE Consultants

Table of Water Flow Measurement

Sr. #	District	Points	Location	Readings	Width (Inches)	Depth (Inches)	Total area	Velocity	Flow	Total Flow	Cusecs	Remarks
1	Dist: Naseerabad	Start (10 Meter away from Mogha)	Upper	14	30	4	120	0.36734	44.0808	189.7932	6.70174	-
			Mid	22	30	5	150	0.55942	83.9130			
			Lower	13	30	6	180	0.34333	61.7994			
	UC: Quba Sher Khan Sharqi	Mid (50% Length of WC)	Upper	5	30	5	150	0.15125	22.6875	128.0978	4.52323	-
			Mid	11	30	6.5	195	0.29531	57.5855			
			Lower	7	30	8	240	0.19927	47.8248			
	Village: Ejaz ahmed Bugti	End (75% Length of WC)	Upper	6	30	4	120	0.17526	21.0312	113.4414	4.0057	-
			Mid	12	30	5	150	0.31932	47.8980			
			Lower	9	30	6	180	0.24729	44.5122			
2	Dist: Sohbatpur	Start (10 Meter away from Mogha)	Upper	4	42	5	210	0.12724	26.7204	157.5021	5.56151	-
			Mid	9	42	8	336	0.24729	83.0894			
			Lower	3	42	11	462	0.10323	47.6923			
	UC: Faridabad	Mid (50% Length of WC)	Upper	7	42	5.5	231	0.19927	46.0314	157.3996	5.5579	-
			Mid	5	42	9	378	0.15125	57.1725			
			Lower	3	42	12.5	525	0.10323	54.1958			
	Village: Ghulam Haider	End (75% Length of WC)	Upper	5	42	6.5	273	0.15125	41.2913	265.0956	9.36072	Heavy slop in last point
			Mid	10	42	11	462	0.2713	125.3406			
			Lower	5	42	15.5	651	0.15125	98.4638			
3	Dist: Mastung	Start (10 Meter away from Mogha)	Upper				0	0.0312	0.0000	81.1266	2.86464	Water Level was not enough for 3 readings
			Mid	39	21	1	21	0.96759	20.3194			
			Lower	59	21	2	42	1.44779	60.8072			
	UC: Dasht	Mid (50% Length of WC)	Upper				0	0.0312	0.0000	44.3192	1.56494	Water Level was not enough for 3 readings
			Mid	20	21	1	21	0.5114	10.7394			
			Lower	32	21	2	42	0.79952	33.5798			
	Village: Mammani	End (75% Length of WC)	Upper				0	0.0312	0.0000	39.2771	1.3869	Water Level was not enough for 3 readings
			Mid	20	21	1	21	0.5114	10.7394			
			Lower	27	21	2	42	0.67947	28.5377			
4	Killa Saifullah	Start (10 Meter away from Mogha)	Upper				0	0.0312	0.0000	33.6661	1.18878	Water Level was not enough for 3 readings
			Mid	26	18	1	18	0.65546	11.7983			
			Lower	24	18	2	36	0.60744	21.8678			
	UC: Kan Mehtarzai	Mid (50% Length of WC)	Upper				0	0.0312	0.0000	31.0730	1.09721	Water Level was not enough for 3 readings
			Mid	24	18	1	18	0.60744	10.9339			
			Lower	22	18	2	36	0.55942	20.1391			
	Machhli Bagh	End (75% Length of WC)	Upper				0	0.0312	0.0000	24.8569	0.87772	Water Level was not enough for 3 readings
			Mid	17	17	1	17	0.43937	7.4693			
			Lower	20	17	2	34	0.5114	17.3876			

4.2.4.3 Planning for Baseline Survey (Phase-II) F.Y. 2021-22

The ME&IE Consultants conducted Baseline Survey (Phase-I) in the month of June 2021. The main objective of this survey was to establish baseline levels of cropping intensities, crop yields, farm incomes and employment. Farmers' opinion was also taken about the level of water logging & salinity and time to irrigate one acre with canal / tube well water. This baseline values will help in the net impact of the intervention from impact survey data.

This baseline survey greatly supports project in efficient and effective planning, monitoring and evaluation of a project. Therefore ME&IE Consultants kept a close liaison with the client

throughout the course of this assignment. The ME&IE Consultants approached the study by firstly apprehending in detail the project expectations from the baseline survey and making further smart the following indicators that the survey intended to cover:

- Water conservation
- Agriculture productivity
- Change in cropping pattern,
- Increase in cropping intensity,
- Poverty alleviation,
- Livestock inventory,
- Waterlogging & Salinity
- Plantation
- Data of tube wells in Barani areas

The Balochistan field teams focused the targets of F.Y. 2020-21 in Baseline Survey (Phase-I). As per

list given by OFWM, total targets of Watercourses were 141 and Water Storage Tanks were 603. The Balochistan Field Teams selected 09 districts out of 33 (27%). The Balochistan had two zones i.e., north and south, during first baseline survey 04 districts i.e Killa Abdullah, Loralai, Killa Saifullah and Pishin selected from North Zone and 04 districts selected from south zone i.e. Naseerabad, Sohbatpur, Mastung and Kalat. The Quetta district included additionally considering as Head Quarter.

received the targets of F.Y. 2021-22. The targets given by the OFWM is consisting 296 Watercourse and 1026 Water Storage Tanks in 33 districts of Balochistan. At the current stage works tendering procedure is in progress, however, in some districts tendering process has been completed and works has started. The ME&IE Consultants are planning to initiate the Baseline Survey (Phase-II) from 2nd week of December 2021. The ME&IE Consultants are in coordination with OFWM Department and NWMC regarding beneficiary data collection.

Now, the ME&IE Consultants, Balochistan has

District-wise Targets of F.Y. 2021-22:

S#	Name of Districts	WATERCOURSES				WATER STORAGE TANKS				
		Barani	Canal	RCC Pipe	Total	60'	50'	40'	30'	Total
1	Kalat	7	0	0	7	18	24	17	0	59
2	Mastung	6	0	4	10	17	21	16	0	54
3	Khuzdar	6	0	0	6	18	22	17	1	58
4	Pishin	6	0	0	6	18	22	17	1	58
5	Loralai	7	0	0	7	18	23	17	1	59
6	Killa Saifullah	6	0	0	6	17	22	17	0	56
7	Killa Abdullah	7	0	0	7	19	24	17	0	60
8	Barkhan	3	0	0	3	12	15	12	0	39
9	Zhob	5	0	0	5	14	17	13	2	46
10	Kachhi	3	0	0	3	12	15	12	1	40
11	Lasbela	5	3	0	8	14	17	13	2	46
12	Kech	5	0	0	5	13	16	12	1	42
13	Panjgur	5	0	0	5	13	15	13	4	45
14	Awaran	5	0	0	5	14	11	13	1	39
15	Chagai	3	0	6	9	10	11	8	1	30
16	Nushki	3	0	6	9	10	11	8	1	30
17	Musa Khail	2	0	0	2	9	10	6	1	26
18	Quetta	3	0	0	3	9	11	8	2	30
19	Kohlu	3	0	0	3	9	11	8	1	29
20	Jhal Magsi	3	2	0	5	6	7	5	1	19
21	Kharan	1	0	1	2	3	5	5	1	14
22	Washuk	1	0	1	2	3	5	5	1	14
23	Surab	1	0	0	1	4	5	5	0	14
24	Duki	1	0	0	1	3	5	5	0	13
25	Sherani	1	0	0	1	3	5	5	2	15
26	Ziarat	0	0	0	0	3	4	2	2	11
27	Sibi	1	0	0	1	3	4	3	0	10
28	Harnai	1	0	0	1	3	4	3	2	12
29	Gwadar	1	0	0	1	3	4	3	0	10
30	Naseerabad	0	52	0	52	4	5	0	0	9
31	Jaffarabad	0	56	0	56	4	5	0	0	9
32	Sohbat Pur	0	54	0	54	0	2	0	0	2
33	Dera Bugti	4	4	2	10	9	11	8	0	28
Total		105	171	20	296	315	389	293	29	1,026

4.3 ONLINE DATA ENTRY IN ANDROID BASED APPLICATION

Data collection carried out through Android Based Application developed by ICT Specialist of ME&IE Consultants NPIWC-II.

Data entry is done directly by the field monitoring teams of all the zonal offices and is uploaded in the MIS system. The data is being observed and monitored by the ICT Expert of ME&IE Consultants.

4.4 MEETINGS OF ME&IE CONSULTANTS WITH STAKEHOLDERS REGARDING PROJECT PROGRESS / ISSUES

4.4.1 Meetings of ME&IE Consultants – ICT Zone

Date	9 th November 2021
Venue	Office of National Projects Coordinator G-7 Markaz, Islamabad
Participants	
<ol style="list-style-type: none"> 1. Mr. Muhammad Tahir Anwar, NPC (In Chair); 2. Muhammad Naeem Akhtar DPC (WCKP); 3. Mr. Saiful Islam, DPC, NPIWC-II; 4. Ch. Saifullah Ijaz BOM ME&IE Consultants; 5. Hafiz Abdul Rauf BOM ME&IE Consultants; 6. Dr. Usman Mustafa, TL, ME&IE Consultant; 7. Dr. Mansab Ali, Irrigation Agronomist, ME&IE Consultant; 8. Mr. Afzal Hayat Khan, Social & Gender Specialist, ME&IE Consultant; and 9. Mr. Rizwan Saleem, Incharge ICT Specialist, ME&IE Consultants. 	
Meeting Agenda:	
<p>3rd Meeting of Project Board of Management (PBOM) of ME&IE Consultants under Projects Titled "NPIWC-II and WC-KP"</p> <p>The meeting was held to discuss the circulated agenda items under the National Project Coordinator Engr. Muhammad Tahir Anwar on 9th November, 2021.</p> <p>It was a very good interaction of client and consultant, and, various technical, administrative and financial matters were discussed in detail and decisions were made for smooth functioning of the projects activities.</p>	

Date	23 rd November 2021
Venue	Water Management Department
Participants	
<ol style="list-style-type: none"> 1. Engr. Ghufuran Dy Director Water Management 2. Mr. Mubeen, Water Management Officer 3. Dr. Umar Farooq, Dy Team Lead ME&IE Consultants 4. Muhammad Bilal, Field Team Incharge ME&IE Consultants 	
Meeting Agenda:	
<p>Meeting was conducted to discuss</p> <ul style="list-style-type: none"> - Sharing the Monitoring work plan - Increase Coordination - Continuous data sharing mechanism <p>It was first coordination meeting with Dy Director. ME&IE consultants' team introduced himself to Dy Director. Different topics were discussed related to the project including total target, achieved number, way forward to remaining targets, data sharing at TS stage, joint visit at different sites for case study preparation.</p> <p>Dy Director extended his support for the smooth ME&IE activities of the consultants. However he requested the ME&IE consultants to contact his team members a little early before the visit, so they can manage their time accordingly and support the monitoring team for field activities. It was also discussed to manage things a little in-formal for a pace of work, it was agreed that next time ME&IE team will share their target through WhatsApp or call so time may not be wasted on coordination through letters. It was agreed by the Dy Director that very next day Mr. Mubeen will accompany the ME&IE team towards one of the Phulgaran site</p>	

4.4.2 Meetings of ME&IE Consultants – Punjab Zone

Date	November 03, 2021
Venue	Office of the Directorate General of Agriculture (OFWM), Davis Road Lahore
Participants	
<ol style="list-style-type: none"> 1. Mr. Hafiz Qaiser Yasin, Director Agriculture OFWM (H.Q) 2. Mr. Tahir Mehmood, Assistant Director Agriculture (Technical) 3. Dr. Muhammad Abdul Quddus, Agri Economist (ME&IE Specialist) 	

4. Mr. Muhammad Yousaf Bhatti, Deputy Team Leader (Punjab Zone)
5. Mr. Syed Shahzaib Gillani, Supporting Staff

*D. G Agriculture (OFWM) could not attend the meeting as he was engaged in other assignments.

Meeting Agenda:

1. Reviewed the progress of the project.
2. Extended request for the data required from OFWM field (DA, DDA, ADA) offices for implementation of MIS dashboard. The formats / templates for data required were handed over to the respective officers of OFWM.



Meeting held with DA & ADA in Directorate General (OFWM) Lahore



ME&IE Consultants after the meeting held with ADA Lahore city and Lahore Cantt.

4.4.3 Meetings of ME&IE Consultants – KP Zone

Date	November 30, 2021
Venue	Office of Director Agriculture OFWM Training Institute OFWM Multan Road Thokhar Niaz Baig Lahore
Participants	
<ol style="list-style-type: none"> 1. Aurangzeb Badar, Assistant Director Agriculture OFWM Lahore Cantt 2. 2. Samiullah Khan Niazi, Assistant Director Agriculture OFWM Lahore City 3. Shahid Khalil Rana, Field Engineer Technician ME&IE Consultants 4. Syed Ali Haider, Field Engineer Technician ME&IE Consultants 5. Misbah u Rehman, Field Engineer Technician ME&IE Consultants 	
Meeting Agenda:	
<ol style="list-style-type: none"> 1. Review of project progress in Lahore District 2. Collection of basic data of watercourses (2021-22) for baseline survey / monitoring purposes. 	

Time	November 01, 2021
Venue	On Farm Water Management Office, Peshawar
Participants	
<ol style="list-style-type: none"> 1. Mr. Javid Iqbal, DG OFWM KP Peshawar 2. Dr. Humayun Khan, Deputy Team Leader (G3 Consultants) 3. Fawad Ahmad, ICT/Technology Specialist (G3 Consultants) 	
Meeting Agenda	
<p>Agenda of the meeting was data sharing of NPIWC-II of KP with ME&IE consultants. Meeting started with the general discussion regarding the ME&IE consultants' activities and progress made so far in this regard.</p> <p>Following discussions held at the meeting. The DTL KP Zone thanked the DG OFWM KP Mr. Javid Iqbal for his cooperation they extended and requested him for providing files of the schemes of WCs completed during the year 2021. The DG</p>	

directed Dr. Rab Nawaz Khan, programme coordinator, to facilitate the process of providing relevant files to the M&E consultants.

Dr. Rab Nawaz provided files of completed WCs schemes of 15 districts mostly of central zone to the ME&IE consultants and requested to the District Directors of the remaining districts to provide the same in due course of time.

Meeting ended with a vote of thanks to DG OFWM KP Mr. Javid Iqbal.



Meeting of the DTL KP Zone with Mr. Javid Iqbal DG OFWM KP

Date	November 02, 2021
Venue	On Farm Water Management Office, Peshawar
Participants	
1. Dr. Rab Nawaz, Project Director OFWM Peshawar	
2. Dr. Humayun Khan, Deputy Team Leader (G3 Consultants)	
3. Fawad Ahmad, ICT/Technology Specialist (G3 Consultants)	
Meeting Agenda	
Meeting started with the greeting note by Fawad Ahmad. Dr. Rab Nawaz welcomed M&E consultant.	
Following discussions held at the meeting.	
1. Dr. Rab Nawaz shared the work plan of 2019-2020 & 2020-2021 (Physical and Financial) with M&E consultants.	
2. As the work plan of 2021-2022 is not approved and is with steering committee for approval, so it will be shared after approval.	
3. All the data files maintained from start of the project till date of each district will be provided to ME&IE consultants for data entry process.	
4. Peshawar and near districts files will be provided to ME&IE consultants at Peshawar	

OFWM office while data of other far distanced districts will be covered by visiting one district and nearest districts will bring data to that district for ME&IE consultants for entry in the system.

- Dr. Rab Nawaz told that they will ask Districts to include the financial payments' dates column and WUA registration number information in future.

Dr. Rab Nawaz told that his office will continue supporting the M&E consultants in providing the required data. Als.

The meeting ended with a vote of thanks to Dr. Rab Nawaz.



Meeting of the DTL KP Zone with Dr. Rab Nawaz, Project Coordinator OFWM KP

Date	November 26, 2021
Venue	Project Management Unit Office, 35 C/111 Gul Mahar Lane University Town Peshawar
Participants	
1. Mr. Muhammad Afzal, Director PMU, Peshawar	
2. Mr. Javid Iqbal, DG OFWM KP Peshawar	
3. Mr. Yaseen Marwat, G Soil Conservation, Peshawar	
4. Nazir Abbas Banash, Director Agriculture Engineering, Peshawar	
5. Dr. Rab Nawaz, Project Director OFWM Peshawar	
6. Dr. Humayun Khan, Deputy Team Leader (G3	

Consultants)
7. Dr. Mansab Ali Khokhar, Irrigation Agronomist, Water Conservation Project Barai Areas
8. Engr. Ilyas, DTL NESPAK, TPV consultants-NPIWC-II,
9. Engr. Nasir, AGES Consultants, Peshawar, DG Agriculture Extension, Peshawar
10. Mr. Fawad Ahmad, ICT/Technology Specialist (G3 Consultants)

Meeting Agenda

10th Joint Review meeting (JRM) of the projects under Prime Minister Agriculture Emergency Programme.

Agenda of the meeting was to review the ongoing project in Agriculture sector in KP. The Project Management Unit called a general review meeting (JRM) in the PMU Office Peshawar that was scheduled at 3.00 pm. Secretary Agriculture, Livestock, and Cooperative Department of KP was supposed to chair the meeting, but due to his other official engagements, he could not attend it. Mr. Afzal, Director PMU chaired the meeting.

Following discussions held at the meeting.

1. General discussions were made by the participants of the meeting about the ongoing projects activities taking place in agriculture sector in KP.
2. The DTL KP Zone briefly explained the ME&IE activities of Consultant on NPIWC-II in KP Zone.
3. Dr. Mansab Ali KhoKhar, Irrigation Agronomist, Water Conservation in Project Barani areas in KP distributed a pamphlet of a success story of intervention under the project.

Mr. Muhammad Afzal, Director PMU ended the meeting with a vote of thank.

2. Mr. Rizwan Ahmed, Deputy Team Leader, ME&IE Consultants, Quetta.

Meeting Agenda/Points discussed:

1. The DG, OFWM requested to provide the missing data of F.Y. 2019-20 and 2020-21 as earlier possible.
2. The DTL, Balochistan briefed to DG, OFWM about OFWM Website it's importance and benefits.
3. The DTL, Balochistan informed by DG, OFWM that works of F.Y. 2021-21 are in tendering process and in some districts works has been initiated.
4. The OFWM officials assigned the task by DG, OFWM to provide the updated status of F.Y. 2020-21 to DTL, Balochistan.

Date	24 th November, 2021
Venue	Office of the DDA OFWM, Mastung.

Participants

1. DDA OFWM Mr. Faqir Muhammad
2. Agriculture Officer Mr. Shamsuddin Baka
3. Sub-Engineer Mr. Sher Ahmed
4. NWMC Engineer Mr. Muhammad Ashraf
5. Manzoor Ahmed Kasi, FTI/M&E Expert
6. Mah Gul Noor, M&E Officer
7. Hamza H. Qureshi, M&E Officer

Meeting Agenda/Points discussed:

1. Status of the Beneficiaries list for F.Y 2021-22.
2. Status of work regarding the F.Y 2021-22.
3. Filing of the schemes of F.Y 2019-2020.
4. Farmers' Feedbacks regarding the schemes of NPIWC-II.
5. Discussed the feedbacks of farmers related to provision of additional schemes.
6. The share of farmer i.e., 25% is a burden on the farmers, as the farmers are already facing problems regarding electricity in the district.

4.4.4 Meetings of ME&IE Consultants – Balochistan Zone

Date	22 nd November, 2021
Venue	Office of the Director General, OFWM, Rani Bagh, Sariab Road, Quetta
Participants	
1. Mr. Ali Raza Jamali, Director General, OFWM, Agriculture Department, GoB, Quetta.	

Date	24 th November 2021
Venue	Office of the DDA OFWM, Mastung.

Participants

1. Mr. Faqir Muhammad, DDA OFWM
2. Mr. Shamsuddin Baka, Agriculture Officer
3. Mr. Sher Ahmed, Sub-Engineer
4. Mr. Muhammad Ashraf, NWMC Engineer

5. Mr. Manzoor Ahmed Kasi, FTI/M&E Expert
6. Miss. Mah Gul Noor, M&E Officer
7. Mr. Hamza H. Qureshi, M&E Officer
Meeting Agenda/Points discussed:
1. Status of the Beneficiaries list for F.Y 2021-22.
2. Status of work regarding the F.Y 2021-22.
3. Filing of the schemes of F.Y 2019-2020.
4. Farmers' Feedbacks regarding the schemes of NPIWC-II.
5. Discussed the feedbacks of farmers related to the provision of additional schemes.
6. The share of farmers i.e., 25% is a burden on the farmers, as the farmers are already facing problems regarding electricity in the district.



Meeting of ME&IEC Team with Mr. Faqir Muhammad, Deputy Director, OFWM, Mr. Shams, Agriculture Officer, and Mr. Muhammad Ashraf, Site Engineer, NWMC at Deputy Director, OFWM Office at Matung.

4.5 ICT ASSIGNMENT

4.5.1 Development of Website of NPIWC-II

The development of Website for NPIWC Phase-II was started by the month of February 2021. The following activities have been completed: -

- Held meetings with the Stakeholders to identify the project website requirements
- Website layout structure prepared
- Design & Development of website completed.

Three number presentations delivered in Client office at various times. As per requirement / instructions of Client, revision/up-dation was made each time and the development of the Website has been completed in June 2021. The revision/up-dation of the Project website has been presented to NPC office and got

approval on all changes. Currently all changes have been incorporated accordingly as per requirements of the Client.

The final Beta version was demonstrated to NPC in his office by August 2021 while the final version presented to NPC on 15 September 2021.

In compliance of the decision made during the 3rd PBOM meeting dated 9th November 2021, the project website was migrated to live server from demo and is currently publicly available on the following link:

<https://npiw2.org/>

The compliance of this milestone has been done.

4.5.2 Data collection of interventions in MIS/GIS database

The activity regarding data collection of Interventions in MIS/GIS database is in progress.

- After acquisition of data from AJK Zone, the Dashboard has been implemented in AJK, and the progress of Interventions is live on the Dashboard application.
- The data collection in ICT zone has also completed as well and after data cleaning and validation the data is available on the Dashboard.
- In KP Zone data collection from 20 districts has been completed out of 32 districts. Detail is given in **Annex-H**. This activity will be completed in KP by the end of December 2021. This data collection for dashboard is in progress in the Balochistan zone as well, but more of the data provided/gathered here is incomplete. However, the situation is worst in Punjab, due to the non-provision of data from the OFWM department the implementation phase in Punjab Province has not started yet.

4.5.3 Designing of Dashboard of Project Interventions

This activity has been completed by the end of May 2021; earlier source code submitted to Client in CD form.

ME&IE Consultants rented in Cloud based web server on monthly basis in May 2021. Dashboard

was uploaded to Cloud based server to make it live by the month of May 2021.

In June it was presented in NPC office, Login was shared with Client.

This milestone has been completely achieved.

4.5.4 Implementation of MIS Dashboard

As defined in the submitted working paper of dashboard implementation on 26 Aug 2021, three stages were defined.

Stage-I - Digitize and Migrate the Data

- As ME&IE Consultants was not allowed for direct communication with any of Provincial departmental Head and NWMC, so that the data for dashboard supposed to receive through FPMU. Despite lot of communication for providing data on required format which was shared to FPMU, ME&IE Consultants did not receive positive response.
- Upon this bottleneck, ME&IE Consultants took initiative with the approval of NPC to digitize the field progress data of AJK and ICT units, which was not defined in ME&IEC TORs.
- However, ME&IE Consultants completed the task in AJK & ICT zone during the month of October 2021.
- On the completion of digitization of data, ME&IEC process the preliminary data cleaning and validation.
- After cleaning and validation, ME&IEC submitted the data to the concern PD for their review and comments.
- ME&IEC received comments and missing data which was updated accordingly to the MIS database.

Stage II – Meetings with all Stakeholders and Shortlist the Nominations

- On the successful completion of Stage-I, ME&IEC held meetings with PD of AJK and shortlist the nominations for data collection.

Stage III - Training and Capacity Building

- With the consultation of PD of AJK and under the approval of NPC, ME&IEC held capacity building workshop from 2nd to 4th of Nov 2021. The detail is given in **Annex- D, E, F, & G**.
- An intensive 8-hour full day training workshop was held on first two days in Muzaffarabad. Small dams and irrigation department's nominated staff participated in the workshop.
- On the third day, there was dashboard presentation. The PD of AJK invited numerous Govt. officials to this event. In the end, Training Completion Certificates were distributed among those participants of the workshop who successfully complete the training. A sample training Certificate is given as **Annex-I**.

4.6 MONITORING / DATA COLLECTION ON SOCIAL AND GENDER COMPONENT

4.6.1 Balochistan - Gender Role and Benefits:

The female family members are taking a lot of benefits through this intervention. The washing pads of Watercourses are being used for washing clothes. Before this intervention female family members use to do this activity away about 1.5 km from home by spending precious time. Now these female members have lot of convenience and time savings for family. The washing paid are also being used for washing vegetables, fruits, etc. by women at farm, before this activity it was conducted at their home, lot of time wasted to brought them from farm to home.

Farmer Feedback:

Mr. Shafiq, Farmer told to ME&IEC Team that before intervention this activity a lot of our land was uninhabited. Due to the mess of water, the crop was also weakened. It took a lot of time to irrigate the land and also a lot of time was wasted in cultivating the crop. At once Mr. Imdad, Deputy Director, OFWM surveyed our land and advised me to make a paved drain and inform me of its importance and usefulness.

I was not interested because of the huge amount of money then Mr. Imdad, DD assured us that 75% of the expenses were to be paid by the government, and the farmer was obliged to pay only 25%.



The ME&IE Team Interviewing the Farmer

When I started irrigating the land for the first time after the completion of Pukka Watercourse, I was overjoyed. Water started irrigating the field without any hindrance.

I was amazed at the usefulness of the watercourse because I never thought I would be irrigated so quickly without wasting water in such a short time. Thanks to the Government of Pakistan to initiate such a wonderful project for farmer's legatee.

4.7 CASE STUDY – SUCCESS STORIES OF THE PROJECT INTERVENTIONS

ME&IE Consultants interviewed the farmers to know their satisfaction level on the NPIWC-II project. In this regard consultants prepared some success stories of the project interventions as explained below.

4.7.1 ICT: Success Story of Project Intervention - Watercourse

The target watercourse was pipelined for Raja Zaheer Ahmad and it is located at Phulgran area.

The team visited the area around 11 am and checked the field area. There were 2 farmers working on farm and picking the Tulip flowers on 2 acre land. The farmers told that they use to pick these flowers on daily basis and sell it in local market of Islamabad almost 10 to 22 rupees per flower depending on season. Farmers told that this flower cannot be grown without moisture on the surface of the farm land.

Later team moved to the Hujra of Raja Nazeer Ahma. Rajz Nazeer was out of city, however his nephew Raja Adeel Shahid was available who accompanied the team and shared all the information needed of his farm area and his level of satisfaction on the NPIWC-II project. Following information was gathered from him.

He told that two acre land needed seed of Rupees 50000. If it is grown through bulb, one bulb cost around 6.75 rupees these days.

Two crops can be obtained for Tulip flowers November and April. This is a three months' crop and require only 6 waters. However, if there is good rainfall, then they avoid irrigation. This irrigation water is also needed to keep soil moist for long time, so flower can remain in good condition. Dry soil conditions could make flower die. This problem has been resolved by the watercourse.

A good quality seed could be produced from the lands of ICT without fertilizer due to good drainage and natural sweet water.

It was told that they were getting only wheat and maize from the current land holdings before this intervention NPIWC-II project, however, one of the progressive farmers suggested them to change the crops towards cash crop and now they are growing these flowers.

He suggested that if the local farmers are provided proper training, advice and equipment, they can change their existing cropping patterns towards better cash crops, so they can earn a lot from small

landholdings. They grow fodder for remaining season to make silage for animals.

Later on team returned back and requested the WMO that he may ensure the presence of WUA chairman on next visit.

4.7.2 Punjab: Success Story of Project Intervention - Water Storage Tank

Construction of Water Storage Tank Has Triggered Paradigm Shift in Farming and Eventually Resulted in High Returns from Farming

Water is the lifeblood in agriculture. The main source of irrigation is from a vast canal system comprising of Canal, Branch Canal, Distributary Minor, and Watercourse. The conveyance losses of water in reaching the farm are estimated at 45-50 percent. Since 1960 several programs and projects in one way or the other have been launched for water conservation at the farm level and increasing water availability at the farm gate to improve water management practices in Pakistan. The National Program for improvement of the watercourse in Pakistan Phase-II is in continuation of programs/projects to improve irrigation water management at field levels in Pakistan.

The Intervention:

The construction of a water storage tank is one of the interventions of this program. The main purpose of the construction of the Water Storage Tank under the National Program for water improvement was to capture and store canal water, Surface water Runoff. So, that it may be used subsequently at the required time of irrigation. The cost of pumping the water from the water storage tank is lesser than the pumping from the ground i.e., tube well.



A View of Strawberry Field at Farm Site



A View of Tomato Field at Farm Site

Mr. Habib-Ur-. Rehman is an educated and well-known progressive farmer of Sheikhpura. By Profession, he is an Advocate. He is associated with farming for the last 10 years by having 10.5 acres of land. On this water Storage Tank, he has only 5.5 acres of land. His village is located in a water-scarce area, where canal water is the main source of water and the quality of Tube well water is poor. He has hired a full-time farm manager /Munshi Dr. Mansha to look after his farm (on this water storage tank) and farm of 5 acres in the nearby vicinity. He is also responsible for so many other petty works.

Basic Profile of the Owner of Water Storage Tank

Province/Unit	Punjab
Division	Lahore
District	Sheikhupura
Tehsil	Sheikhupura
Union Council	UC-17
Village	Qiampur
Name of Farmer/Beneficiary	Habib-ur-Rehman
CNIC	3540423820695
Cell No	03004736072
Father Name	Ali Hassan
Source of Irrigation System	Canal and Tube well
Operated area	5.5 Acre
Land Topography	Even
Financial Year	2020-21

During 2016-17, he was using traditional methods for growing wheat but soon he was disappointed as his net income was very low attributed to low yield due to the shortage of canal water and use of tube well water.

Collaboration of OFWM:

Farmer's Statement: "Traditional farming has become less profitable due to continuously increasing production costs (mainly on irrigation and fertilizer). Meanwhile, the On-Farm Water Management (OFWM) staff approached him and explained about water Conservation Techniques i.e., drip irrigation".

In the years 2017-18, he shifted to drip irrigation and for successful tunnel farming for growing strawberry and off-season vegetables. This system enables him to get more returns per unit area and increased his livelihood from the agriculture sector".



A View of Tunnel Farming at Site

Guidance from OFWM Department

Due to the highly limited availability of canal water and poor quality of groundwater he faced issues regarding water. He has no means of storing canal water and/or rainwater for utilizing in farming. Then, he contacted OFWM staff for seeking various solutions. The On-Farm Water Management (OFWM) staff approached him and guided him about the National program for improvement of Watercourse Phase-II. The On-Farm Water Management (OFWM) staff briefed him about the Construction of Water Storage Tanks. Then this Water Storage Tank was constructed.



Views of water Storage Tank, Qiampur Tehsil, and District Sheikhupura

Impact of the Intervention on inputs – outputs

The impact of this intervention is naturally affecting the farming community in the same vicinity. At this moment only a few tangible and intangible benefits were observed.

This Water Storage Tank not only helps to Store canal water but also Stores Rainwater as well. Farmer used this Water Storage tank to mix the

Fertilizer. It gives a Homogeneous mix. This Water Storage tank helps to Store Water during the harvesting season or when there is no need. The Construction of a Water Storage Tank fulfills the Deficiency of water and created a high impact on the quality and yield of vegetables.



Meeting with Dr. Mansha (Farm Manager) of Water Storage Tank



Meeting with owner of the Water Storage Tank

It also reduced immature fruit drop, improved fruit size & color, and brought early maturity/harvesting to fetch a good price in the market. The Construction of a Water Storage Tank enabled him to get higher production with 52% less fertilizer use. His cost of production has been considerably reduced and available canal water is sufficient to grow vegetables successfully without pumping brackish groundwater, directly.

While sharing his experience, he indicated that the savings in Water Consumptions due to the Storage of Canal Water in the Tank as well as the labor cost of Fertilizer has provided significant benefits. "Labor expenses are curtailed and yields have gone up". He added that "expenditure on weedicides has also been reduced as the irrigation water is delivered to

plant roots only and accordingly, fewer weeds are grown resulting in little expenses on weedicides. Now he can irrigate and harvest Strawberry and Tomato". Habib-ur-Rehman excitedly told that "I am following all the guidelines provided by On-Farm Water Management staff to grow healthy crops and I am expecting more than 50% higher yields of Strawberry and Tomato crops".

4.7.3 KP: Success Story of Project Intervention - Watercourse

Water Course: Muhammad Zeb Tube Well Water Course

Location: District & Tehsil Mardan, UC Bazar, Village Baroch

Abstract: It is important to develop an irrigation system where water losses should be reduced as much as possible. Current irrigation through kacha water courses is obsolete and the farmer lost water during the irrigation. A proper irrigation system should be developed which not only save the water losses but also take less time to irrigate more area.

Introduction: A good understanding of irrigation system and proper representation of them in water courses is required to adequately provide water to the farmers. Throughout the world a wide variety of irrigation system and water distribution procedure exist. Therefore, a proper irrigation model should be developed for the quick delivery of irrigation water to the area. The study area is a remote area and no irrigation system is existed which is located in District Mardan, UC Bazar. The main water source in the area is rain water (Barani Area)

Water course was completed by On Farm Water Management on 03/10/2020. The purpose of the water course is to provide adequate water to the farmers for irrigation purpose. Total CCA on the water course is 100 Acre which was none irrigated before the improvement of the water course, so there was no farming activities and no cropping on the land. The land was culturable but there was no source of irrigation and the farmer was not getting any benefit from the land. Below images shows the condition of the land before the water course.



View of farmer's Land before Intervention

After the completion of the water course in Oct 2020 the formers have prepared the land through tractor, bull ploughing and some other sources to get it ready for the crops. According to the farmers the land required to be fully irrigate at least once to get it ready for the land preparation. The land took a lot of time to irrigate during the 1st time irrigation. Though Maize and wheat are crops of Bazar area but the formers are not getting enough yield from these crops therefore Mr. Muhammad Zeb were interested in the orchard especially in orang gardens which is consider the main cash of the area.

Keeping in mind the cash crop Mr Muhammad zeb prepared the land for the orange plants. The orange plants were planted by the farmers in Apr 2020. Due to the availability of the water the plants are growing fast and expected to start production in the next 2 years' time.

Below images shows the size and current position of the plants.



View of Farmer's Land with Orange Orchard – After Project Intervention

Describing his future farming plan after water course completion Mr. Muhammad Zeb is planning for mix cropping system therefore he currently cultivated Peas and Garlic inside the Orchard and planning of cultivating Spinach and Onion during coming Kharif season. There current orchard (orange) is the first ever crop of this land and there were no farming activities earlier so the data for cropping pattern and cropping rotation is not available. Currently 6 farmers look after the crops so the employment increased from Zero to 6 people since the completion of the water course and some more labours requirements are expected in the near future. The production (Yield) is expecting to start soon which will not only change the living standard of the farmers but will also help other labours working in the field to have some facilities in their lives.

The point noticed during the interview with the farmers was that the Water User Association is not active. There is no regular meeting of WUA and most of the WUA member are not aware of their responsibilities as a member of WUA.



Image: Water Course

Result: Lining the water course improved the availability of the water. In term of quality the newly develop water course is far better than using old irrigation system. Water losses after water course lining is reduced from 70% to 12%. 100 Acre of land is now expected to be irrigated which will produce wheat, Peas, Garlic and Orange.

4.7.4 Balochistan: Success Story of Project Intervention - Construction/Renovation of Watercourses in District Jaffarabad

“Agriculture is the noblest of all alchemy; for it turns earth, and even manure, into gold, conferring upon its cultivator the additional reward of health.” — Paul Chatfield.

Under the direction of the Prime Minister of Pakistan, the said project on “National Programme for Improvement of Watercourses in Pakistan, Phase-II” was started in 2020. The NPIWC-II comprises four components to be implemented in Punjab, KP, Balochistan, GB, AJK, and ICT:

- i) Organization of Water Users Associations
- ii) Watercourse Improvements: 47,278 Nos.
- iii) Construction of Water Storage Tanks: 14,932 Nos.
- iv) Provision of Laser Land Leveling Units: 11,610 Nos.

With the passage of time, water resources are being overexploited, especially in urban areas, and groundwater levels are sinking. If this process continues, there is a danger that water may not be available even for human consumption. To address such water issues, Govt. of Pakistan initiate the Project “NPIWC-II” throughout the country including Balochistan and pay immediate special attention to the careful and efficient use of available water resources. The objectives of the Projects are:

- Reconstruction/renovation and remodeling of 47,278 watercourses in Pakistan, involving complete earthen renovation, partial lining of critical reaches (50% of the total watercourse length as decided in the high-level meeting), and installation of water control structures. It is expected to save around 5.82 MAF per annum (approx. saving of 123 acre-feet (AF) per watercourse per annum).
- Reduction in Water Logging and salinity in project areas to the extent of 10%.
- Cropping intensity is expected to increase by 5-20%.
- Crop’s yield is estimated to increase by 10-15%.
- Equity in water distribution increased by about 30%.
- Reduction in water disputes/thefts and litigation amongst the Farmers over water distribution by about 80%.
- Help poverty reduction through the generation of employment.
- Self-sufficiency in food through the utilization of water saved for edible oilseed production.

In the month of November 2021, Mr. Muhammad Tariq, FTI/M&E Expert and Mr. Saleem Abro, M&E Officer visited the farm of Mr. Shafiq, Farmer at Tehsil Dirghi, District Jaffarabad. The Jaffarabad is located in the eastern part of Balochistan was established district of the province in 1987. Jafarabad's headquarters are at [Dera Allah Yar](#) formerly and still known as Jhatpat. The climate is hot and dry in summer and moderately cold in winter. Main crops are **wheat, rice, maize, cotton, vegetable, and fodder crops.**

The construction of new “Pakka” watercourse or improvement of WC is the major activity of the project. The procedures for new watercourses and

for 20 years old have been kept the same in the project. In case of additional lining, they are different to some extent.

Mr. Shafiq, Farmer has motivated by the OFWM officials regarding NPIWC-II. The farmer briefed by OFWM regarding the benefits of the Pakka Watercourse. Initially, Mr. Shafiq was little bit confused regarding the 25% share of a farmer but later on he applied an application for new pakka watercourse in place of kacha watercourse. After the consent of the farmer's contribution of 25%, the site assessment was made considering the water source, soil structure, and suitability for the watercourse. Ultimately, construction of the watercourse was completed in 03 months and supplied water that enabled subsistence cereal/staple food to farmers Shafiq Ahmed to grow more profitable commercial crops like vegetables (Wheat, Rice, etc.) He was not only able to grow these commercial crops but got good quality crops through a regular supply of irrigation water.



Views of Kach Watercourse (Before intervention)

Water:

The people of Baluchistan have always depended on natural water sources such as springs, streams, rivers and karezes. Among these, the karezes are the most persistent; other sources are seasonal and depend on climatic conditions.

The site visited area in canal irrigation systems. If the canal does not flow on time, the crops fail, and cropping options remain limited to staple food crops. More importantly, the crop water productivity has been the lowest than its potential. There is a serious need to conserve this vital water resource to ensure more productivity per drop of water.

Impact on Yield Production:

Prior to this activity, farmer was getting 1440 kg (36 Mond) per acre in Rice while only 640 kg (16 Mond) per acre in wheat. After construction of new watercourse farmer is able to get 1610 kg per acre of Rice through hybrid Seed (12% increased) and 742 kg per acre of wheat (16% increased).



View of a newly constructed watercourse and lush stunning crops

Impact on Livestock Rearing:

These households got water drinking facilities for cattle & buffaloes, goats & sheep, and poultry birds. Farmers are raising fodder for livestock instead of relying on wild and native bushes to feed their animals. This increase in fodder and improvement in quality raise their income by about 10% through selling animals for meat and milk production. Rearing more animals is not only increasing female members' income but also makes them independent in decision making.

Gender Role and Benefits:

The female family members are taking a lot of benefits through this intervention. The washing pads of Watercourses are being used for washing clothes. Before this intervention female family members use to do this activity away about 1.5 km from home by spending precious time. Now these female members have lot of convenience and time savings for family. The washing paid are also being used for washing vegetables, fruits, etc. by women at farm, before this activity it was conducted at their home, lot of time wasted to brought them from farm to home.

Farmer Feedback:

Mr. Shafiq, Farmer told to ME&IEC Team that before intervention this activity a lot of our land was

uninhabited. Due to the mess of water, the crop was also weakened. It took a lot of time to irrigate the land and also a lot of time was wasted in cultivating the crop. At once Mr. Imdad, Deputy Director, OFWM surveyed our land and advised me to make a paved drain and inform me of its importance and usefulness.

I was not interested because of the huge amount of money then Mr. Imdad, DD assured us that 75% of the expenses were to be paid by the government, and the farmer was obliged to pay only 25%.



The ME&IE Team Interview the Farmer

When I started irrigating the land for the first time after the completion of Pukka Water Course, I was overjoyed. Water started irrigating the field without any hindrance. *I was amazed at the usefulness of the watercourse because I never thought I would be irrigated so quickly without wasting water in such a short time. Thanks to the Government of Pakistan to initiate such a wonderful project for farmer's legatee.*

CHAPTER 5: WORK PLAN-ACTIVITIES OF THE CURRENT QUARTER

The ME&IE Consultants' activities initiating during the Fourth Quarter 2021 (October 1, 2021 to December 31, 2021) are listed below. A tentative Work Plan for 4th Quarter (October 1, 2021 to December 31 2021) showing time span detail is given as **Annex-A**.

Pre Field Activities

- i) Preparation for Baseline Survey 2nd Phasefield visit

Field Activities

- ii) Data collection from OFWM Department /NWMC for Baseline survey/regular monitoring
- iii) Data acquisition from Client for Dashboard
- iv) Data entry of Training Session of field staff and Key staff on Survey Manual of MTs and Android Base System
- v) Training of Measurement of water flow-Pygmy current meter
- vi) Data entry, Data cleaning, Data processing & data Analysis
- vii) Regular Monitoring

ICT Assignment

- i) Development of website of NPIWC-II.
- ii) Development of Android based Mobile Application.
- iii) Testing of Monitoring tools on Android based system.
- iv) Data collection of interventions in MIS/GIS database.
- v) Designing of dashboard of Project Interventions.

Coordination

- i) Meeting of DTLs with respective DTL of NWMC
- ii) Meetings of Team Leader and for refinement of Monitoring Tools.

Deliverables

The detail of deliverables of ME&IE Consultants with the timelines is as under:

Document	Status
Draft Inception Report	Submitted
Final Inception Report	Submitted
Monthly Monitoring Report-First (DEC 2020-JAN 2021)	Submitted
Monthly Monitoring Report-Second (FEB 2021)	Submitted
Monthly Monitoring Report-Third (MAR 2021)	Submitted
Quarterly Monitoring & Evaluation Report-First (JAN-MAR 2021)	Submitted
Monthly Monitoring Report-Fourth (APR 2021)	Submitted
Monthly Monitoring Report-Fifth (MAY 2021)	Submitted
Monthly Monitoring Report-Sixth (JUNE 2021)	Submitted
Quarterly Monitoring & Evaluation Report-Second (APR-JUN 2021)	Submitted
Monthly Monitoring Report-Seventh (JULY)	Submitted
Monthly Monitoring Report-Eighth (AUGUST 2021)	Submitted
Annual Monitoring & Evaluation Report	Submitted
Baseline Survey Report (Final Draft)	Submitted
Monthly Monitoring Report-Ninth (SEPTEMBER 2021)	Submitted
Quarterly Monitoring & Evaluation Report-Third (JULY - SEPTEMBER 2021)	Submitted
Special Reports submitted: 1) Monitoring Tools 2) Survey Manual 3) PAM 4) Working Paper on Technology and Methodology for Implementation of Android Based Field Progress Data Collection and GIS Based Progress Monitoring Analytical Dashboard	Submitted
Monthly Monitoring Report-Tenth (OCTOBER 2021)	Submitted
Monthly Monitoring Report-Eleventh (NOVEMBER 2021)	To be submitted within stipulated time

Deliverables/Reporting Requirements is placed at **Annex-J**.

Matrix of Responsibilities

The Matrix of Responsibilities is placed at **Annex-B**.

CHAPTER 6: ISSUES / BOTTLENECKS

The ME&IE Consultants are continuously following constraints for timely initiating the activities:

- Non availability of Technical Sanctions of the watercourses required for baseline survey
- Non-availability of complete up-to-date inventory / data of all interventions from the Client, Provincial Agricultural Departments & NWMC (NESPAK) till to date.
- Due to non-availability of NWMC (NESPAK) deliverables/reports, ME&IE Consultants are facing hurdles to evaluate working of NWMC. In this regard the cooperation of NWMC and respective Directorates is required.
- ME&IE consultants till date have not received data from OFWM for dashboard.

ANNEXES A to J

ANNEX-A: TENTATIVE WORK PLAN

ANNEX - A: TENTATIVE WORK PLAN OF 4TH QUARTER

TENTATIVE WORK PLANNED FOR 4th QUARTER (October To December 2021)												Legend	
												Activity starts	↓
												Activity Ends	↓
												Activity Span	---
No.	ACTIVITIES	3 Months-Year 2021 (Weeks)											
		October				November				December			
		WK-1	WK-2	WK-3	WK-4	WK-1	WK-2	WK-3	WK-4	WK-1	WK-2	WK-3	WK-4
1	Field Activities												
	1.1 Regular Monitoring of Interventions in the Field	↓											↓
	1.2 Data collection of the interventions in the field	↓											↓
	1.3 Baseline Survey stage - 2		↓				↓						
	1.4 Online data entry in android based application	↓											↓
2	ICT Assignment												
	2.1 Development of website of NPIWC-II												
	2.2 Monitoring online data collection and Data entry												
	2.3 Monitoring Android based Mobile Application under implementation by field staff.												
	2.4 Data collection of interventions in MIS/GIS database										↓		
3	Coordination												
	3.1 Meetings of TL with NPC and OFWM Departments regarding Project Progress / Issues												
	3.2 Meeting of DTLs with respective DTL of PC & concerned OFWM Departments												
4	Deliverable												
	4.1 Monthly Monitoring Report	↓	↓			↓	↓			↓	↓		
	4.2 Quarterly Monitoring Report	↓	↓										
	4.3 Baseline Survey Report stage - 2					↓				↓			

ANNEX - B: MATRIX OF RESPONSIBILITIES

MATRIX OF RESPONSIBILITIES

LEGEND	
●	Primary Responsibility
○	Secondary Responsibility
○	Assistance

SR. NO.	DELIVERABLE / ACTIVITIES	NPC-FPMU	Agriculture Dept. (CEWM)	Project Consultants	ME&IE Consultants
1	Provision of Pre-requisite data of project components for starting of Field Activities: <ul style="list-style-type: none"> • Organization of Water Users Associations, • Watercourses Improvement, • Water Storage Tanks, • Laser Land Levelers, 	○	●	-	-
2	Certification of operational documents of the project, <ul style="list-style-type: none"> • Design, cost estimates, completion reports of watercourses, • Design, cost estimates, completion reports of water storage tanks, 	○	○	●	-
3	Undertake baseline, midline and endline surveys of the project activities/interventions in all the project areas.	-	-	-	●
4	Develop monitoring strategy, framework and Result Based Monitoring (RBM) indicators,	-	-	-	●
5	Assessing the water saving per annum on watercourse and water storage tanks as well as aggregate due to the project interventions.	-	-	-	●
6	Assessing the improvement in water availability due to provision of conveyance system.	-	-	-	●
7	Assessing the economic benefits to the agriculture in terms of increase in yield, irrigated area, cropping pattern, cropping intensity, farm income and employment in command area of watercourses and water storage tanks.	-	-	-	●
8	Assessing the extent of community mobilization, financial and administrative sustainability of Water Users' Associations and ensuring the maintenance of watercourses, water storage tanks and laser land levelers.	-	-	-	●
9	Economic Impact of project interventions.	-	-	-	●
10	Carryout impact evaluation of the project investment on the economy and stakeholders.	-	-	-	●
11	Preparation of Monthly, Quarterly and Annual Monitoring, Evaluation and Validation Reports of the project activities.	-	-	-	●
12	Develop a website containing information of facilities and services, applications, procedures, watercourses, water storage tanks, and laser levelers database etc. (Maintaining website should be the responsibility of project staff).	-	-	-	●
13	Provide technical support for the development of a custom-designed mobile application (Android) to capture on-site project progress, geo tagged photos; should be synchronized with the central MIS/GIS database and application for instant reporting and feedback to the	-	-	-	●

ANNEX - C: MONITORING LOG-FRAME

Annex-C: Monitoring Log-frame

Project subcomponents	Targets	Activities	Outputs	Outcome-1	Outcomes-2	Goals / Impact	Methodology for measuring results
C1: Organization of Water Users' Associations (WUAs)	Reactivation of existing / organization of water users' associations. Ensuring one on each target watercourse. Total WUAs ensured 47,278.	a) Community mobilization at 47,278 watercourses	a) Total 47,278 WUAs reactivated / established/registered	a) Right of way of 47,278 watercourses available b) Skilled and unskilled labour required for watercourse improvement available c) Construction material for civil works of watercourses procured d) Alternate arrangement for water conveyance during construction made e) Watercourse improved	a) Disputes among the water users settled b) Farmers' branched improved c) Water allocation made amicably d) Maintenance of watercourses, WST and laser units done e) Cooperation among farmers increased	a) 47,278 watercourses improved and 15 percentage points conveyance losses reduced b) Litigation among farmers reduced	a) The functioning of the WUAs will be established through sample interview surveys of WUAs members twice during the project period

C2: Watercourses Improvements	Improvement of 47,278 watercourses on cost sharing basis: 40% farmers in terms of labour, and 60% funded by project.	<p>a) Establishment of 47,278 Water users' associations (WUAs);</p> <p>b) Registration of 47,278 WUAs;</p> <p>c) Improvement and realignment of earthen section of 47,278 watercourses;</p> <p>d) Lining of up to 50% length of 47,278 watercourse either by:</p> <ul style="list-style-type: none"> • Precast concrete parabolic lining (PCPL) segments, or • Rectangular brick masonry, or any other method as approved by the project 	<p>a) 47,278 WCAs established;</p> <p>b) 47,278 WCAs registered;</p> <p>c) 47,278 watercourses improved and lined;</p>	<p>a) Conveyance losses for improved watercourses decreased by about 15 percentage points.</p> <p>b) 1.654 million households benefited from the activity;</p> <p>c) 11.347 million acres served with improved watercourses</p>	<p>a) Increase in cropping intensity on improved watercourses by 5-24%;</p> <p>b) Increase in crop yields.</p> <p>c) Increase in irrigated area</p> <p>d) Increase in agriculture output per unit of water by about 37%</p>	<p>a) Increase in farm income;</p> <p>b) Increase in employment for farm labour;</p> <p>c) Reduction in poverty;</p> <p>d) Enhanced food security for the country.</p>	<p>a) The water flow measurements will be carried out at before and after watercourse improvement on 2-5% sample basis;</p> <p>b) Agriculture survey before and after watercourse improvement on 2-5% sample basis;</p> <p>c) The survey will determine:</p> <ul style="list-style-type: none"> • Cropping pattern before and after the improvement; • Cropping intensities before and after improvement; • Before and after crop yields;
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							<ul style="list-style-type: none"> • Before and after employment; d) The difference between before and after will be considered the result of the intervention after netting out the contribution of the growth pattern of the crop sector otherwise.
C3: Construction of Water Storage Tanks (WSTs)	a) Construction of 14,932 water storage tanks	a) 14,932 small farmers mobilized to construct water storage tanks for irrigation b) They agree to contribute 40% of the cost c) Agree to first construct the tank with his/her own funds and then	a) 14,932 WSTs constructed b) 14,932 WSTs operated and maintained	a) Water which was otherwise largely going to be wasted is saved b) Irrigation provided at critical stages of the crops c) Flexibility achieved for irrigation	a) More area irrigated b) Increased cropping intensities	a) Increased crop yields b) Increased total crop output quantum c) Increased farm income d) Increased farm employment	a) 2-5% sample of WSTs will be surveyed b) A data collection form will be designed to measure water saving due to WSTs c) The forms used for baseline and impact surveys in case of

		received subsidy at 40% on issuance of FCR					watercourses will also be used for WSTs d) Same data analysis will be carried out here as in case of watercourses.
C4: Provision of Land Leveling Units	a) Provision of 11,610 laser land leveling units to farmers and service providers on a cost sharing basis: 50% by farmer / service provider and 50% by the project.	a) 11,610 laser units provided to farmers / service providers; b) Farmers trained in using the units.	a) 11,610 farmers / service providers received PLL units; b) Farmers / service providers received training in using the units.	a) Land levelled on Farmers' / service providers' farms; b) Land levelled on fellow farmers on rent; c) Total 3.483million acres levelled by 11,610 units.	a) Water application efficiency increased at field level; b) Even germination of seed. c) Field application losses reduced by 10 percentage points d) Water productivity increased by 24%	e) Increased area under irrigated crops; f) Enhanced crop yields g) Increased farm income	a) The land levelling is expected to save irrigation water and result in better and even germination of seeds which can enhance crop yields. The crop yields thus affected will be reflected in agriculture sample surveys. b) 2-4% sample units will be visited by ME&IE Consultants

							<p>teams after one years of delivery</p> <p>c) The unit will be verified</p> <p>d) Area treated during the year will be collected</p> <p>e) Farmers' feedback collected on quality of the unit, quality of the after-sale service, etc.</p>
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ANNEX - D: TRAINING WORKSHOP ON FIELD DATA COLLECTION

Three Days Training Workshop Field Data Collection Through Android Application

Organized by PD Office NPIWC-II - AJK

2nd to 4th November 2021

Venue: Mir Continental - Jalalabad Park, Muzaffarabad

Agenda

Training Objectives

This training workshop will enable participants to use the Android based data collection application for feeding data for MIS Dashboard.

Workshop Trainers

Name	Prefix	Role	Designation
Dr. Usman Mustafa	[UM]	Trainer	Team Leader ME&IEC
Mr. Rizwan Saleem	[RS]	Trainer	ICT/Technology Specialist
Mr. Shumail Mehmood	[SM]	Co-Trainer	Data Analyst

Tuesday, November 2 nd , 2021			Day-1
Time	Topic	Presenter	
10:00 AM	10:10 AM	Workshop Opening:	
		Recitation of Holy Quran	
10:10 AM	10:30 AM	Inaugural speech	
10:30 AM	10:45 AM	Introduction of facilitators and participants	
10:45 AM	11:20 AM	Introduction to digital data collection & GIS based Progress Monitoring Dashboard	
11:20 AM	12:20 PM	Discussion on approved WC forms	
12:20 PM	1:00 PM	Discussion on approved WST/WHS forms	
1:00 PM	2:00 PM	Lunch/Prayer Break	
2:00 PM	3:00 PM	Introduction to Android data collection application	
3:00 PM	3:45 PM	Demonstration of approved WC forms on Android	
3:45 PM	4:30 PM	Demonstration of approved WST/WHS forms on Android	
4:30 PM	4:50 PM	General discussion (Q&A Session)	
4:50 PM	5:00 PM	Day End Closing Remarks	

Wednesday, November 3 rd , 2021			Day-2
Time	Topic		Presenter
10:00 AM - 10:30 AM	Rapid Revision Session of Android Application and Digital Forms		RS (ICT Specialist)
10:30 AM - 12:00 PM	Hands-on training session		SM (Co-Trainer)
12:00 PM - 1:00 PM	Data collection field exercise		SM (Co-Trainer)
1:00 PM - 2:00 PM	Lunch/Prayer Break		
2:00 PM - 2:30 PM	Discussion on hurdles/issues faced during field activity		RS (ICT Specialist)
2:30 PM - 4:00 PM	Social Mobilization & Water User Associations		Dr. Usman (TL)
4:00 PM - 4:30 PM	Discussion on data monitoring/validation checks		RS (ICT Specialist)
4:30 PM - 5:00 PM	Wrap-up and Q&A Session		RS (ICT Specialist)
Thursday, November 4 th , 2021			Day-3
Time	Topic		Presenter
10:00 AM - 10:30 AM	Refresher session		RS (ICT Specialist)
10:30 AM - 10:50 AM	Closing Speech		PD
10:50 AM - 11:30 AM	Distribution of Training Certificates		PD
11:30 AM - 1:00 PM	PMIS Dashboard Launching		

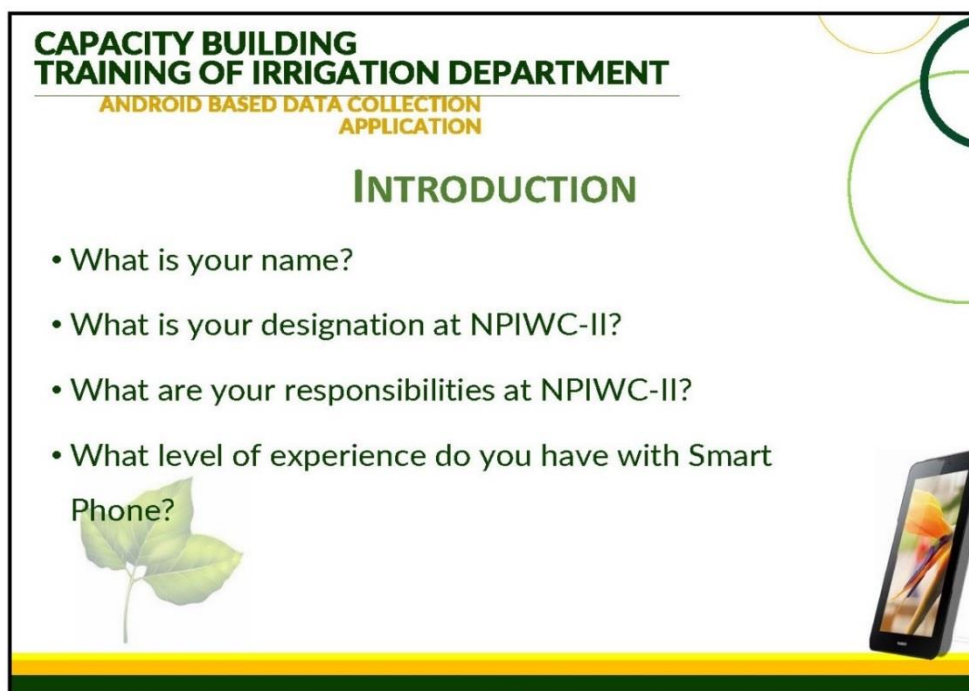
ANNEX - E: PICTORIAL VIEW OF THE TRAINING



ANNEX - F: PRESENTATION ON ANDROID BASED DATA COLLECTION



1



2

CAPACITY BUILDING TRAINING OF IRRIGATION DEPARTMENT

ANDROID BASED DATA COLLECTION APPLICATION

TRAINING OBJECTIVE

The main objective of the training is to build capacity among Divisions, District and Field Teams to use the real time data collection android application.

- After this training all participants will be able to submit the field progress data to PMIS server of real time monitoring.

3

CAPACITY BUILDING TRAINING OF IRRIGATION DEPARTMENT

ANDROID BASED DATA COLLECTION APPLICATION

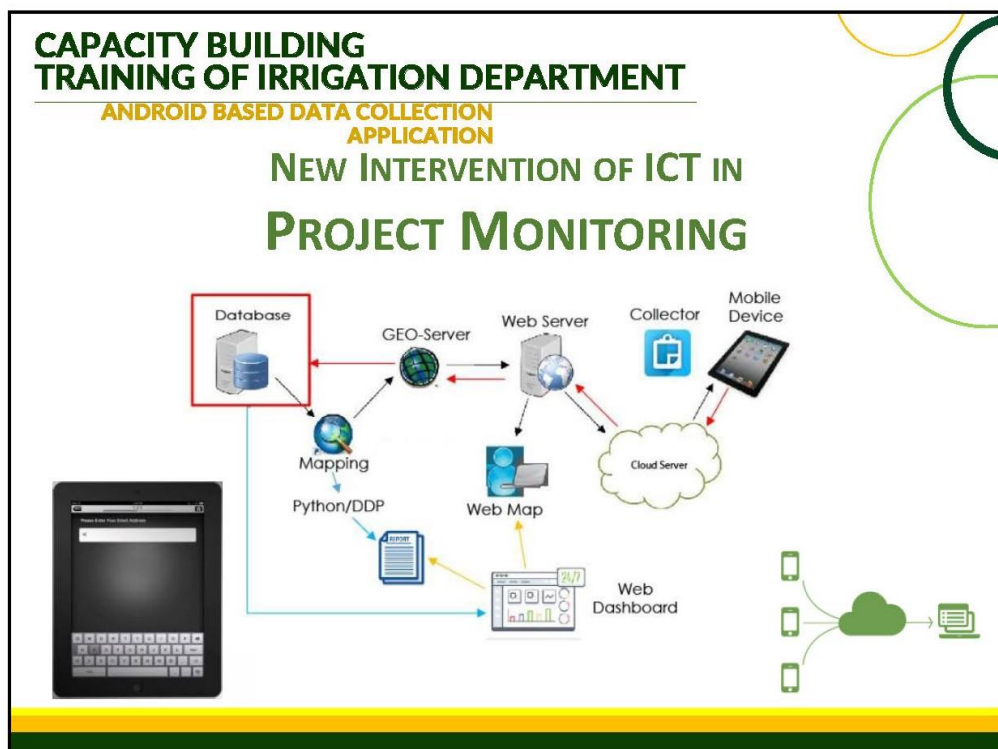
MANAGEMENT & ISSUES IN DATA COLLECTION

- **Data reliability** (will we get the same data, when collected again?)
- **Data validity** (Are we measuring what we say we are measuring?)
- **Data integrity** (Is the data free of manipulation?)
- **Data accuracy/precision** (Is the data measuring the "indicator" accurately?)
- **Data timeliness** (Are you getting the data in time?)
- **Data security/confidentiality** (Loss of data / loss of privacy)

4



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CAPACITY BUILDING TRAINING OF IRRIGATION DEPARTMENT

ANDROID BASED DATA COLLECTION APPLICATION

ROCKET SCIENCE, POCKET SCIENCE, AND SOCKET SCIENCE

The diagram shows a central globe with a question mark. Three dashed lines connect the globe to different data sources: 1. 'Remote Sensing Through Satellite Imagery' represented by a satellite icon. 2. ''Plugging Into' Spatial Data From Partners' represented by a plug icon. 3. 'Real-time Field Data Collected Through Smartphones' represented by four smartphone icons. All three sources point towards the central globe, indicating data integration.

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CAPACITY BUILDING TRAINING OF IRRIGATION DEPARTMENT

ANDROID BASED DATA COLLECTION APPLICATION

WHY USE MOBILE TECHNOLOGY

Device camera can also be used for Barcode /Q R code scanner to get CNIC number automatically rather than enter manually

- Easier to implement changes to questionnaire.

The diagram compares two data collection methods. On the left, a QR Code (2D Code) is shown next to a leaf icon. Arrows indicate it 'Contains data' in both horizontal and vertical directions. In the middle, a Bar Code is shown. An arrow indicates it 'Contains no data' vertically, while another arrow indicates it 'Contains data' horizontally. On the right, a smartphone is shown displaying a 'mobile form' with fields for 'Rate', 'First', 'Second', and 'Third', each with a star rating, and a 'Submit' button. A QR code is also visible next to the phone.

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**CAPACITY BUILDING
TRAINING OF IRRIGATION DEPARTMENT**
ANDROID BASED DATA COLLECTION
APPLICATION

WHY USE MOBILE TECHNOLOGY

- Improving transparency & accountability in development organizations and government agencies, though technology-enabled ME&IE for better monitoring, sharing and application of data.
- Enabling organizations, donors and citizens to use data for real-time decision-making, better implementation and delivery of projects and services




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**CAPACITY BUILDING
TRAINING OF IRRIGATION DEPARTMENT**
ANDROID BASED DATA COLLECTION
APPLICATION

WHY USE MOBILE TECHNOLOGY

- It is beneficial in cost because it waves off massive printing & data entry



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**CAPACITY BUILDING
TRAINING OF IRRIGATION DEPARTMENT**
ANDROID BASED DATA COLLECTION
APPLICATION

WHY USE MOBILE TECHNOLOGY

It gives results at day end rather than waiting for 2-3 weeks in paper-based entry



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**CAPACITY BUILDING
TRAINING OF IRRIGATION DEPARTMENT**
ANDROID BASED DATA COLLECTION
APPLICATION

WHY USE MOBILE TECHNOLOGY

If we have a questionnaire of around 70 pages, enumerator will carry at least 10 copies which means the weight equals to around 1.5 paper rim and a huge bag while in android he/she will take only tablet/mobile device



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CAPACITY BUILDING TRAINING OF IRRIGATION DEPARTMENT

ANDROID BASED DATA COLLECTION APPLICATION

WHY USE MOBILE TECHNOLOGY

- If we need to record GPS, tablet/mobile have built in GPS device and record coordinates without typing or carrying extra device (GARMIN or ETREX worth of around 14,000 Rupees)



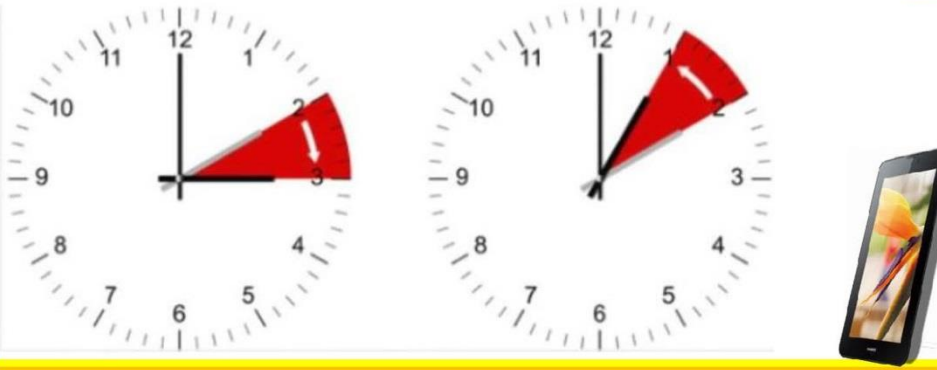
13

CAPACITY BUILDING TRAINING OF IRRIGATION DEPARTMENT

ANDROID BASED DATA COLLECTION APPLICATION

WHY USE MOBILE TECHNOLOGY

To calculate duration of enumeration, it stores start and end time automatically.



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**CAPACITY BUILDING
TRAINING OF IRRIGATION DEPARTMENT**
ANDROID BASED DATA COLLECTION
APPLICATION

WHY USE MOBILE TECHNOLOGY

If we need to capture images, tablet/mobile device have built in camera and no need to take external digital camera




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**CAPACITY BUILDING
TRAINING OF IRRIGATION DEPARTMENT**
ANDROID BASED DATA COLLECTION
APPLICATION

WHY USE MOBILE TECHNOLOGY

- Built-in logical flow and validation checks improves data quality
- Increased Accuracy of data, validity, reliability, precision, iness




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CAPACITY BUILDING TRAINING OF IRRIGATION DEPARTMENT

ANDROID BASED DATA COLLECTION APPLICATION

“ ACCORDING TO USAID, MOBILE DATA COLLECTION ALSO LOWERS THE
TIME TAKEN TO DATA COLLECTION BY A HUGE **70%**
A DECREASE IN TIME AND INCREASE IN EFFICIENCY OBVIOUSLY MEANS
REDUCED COSTS ”



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CAPACITY BUILDING TRAINING OF IRRIGATION DEPARTMENT

ANDROID BASED DATA COLLECTION APPLICATION

WHY DIGITAL TECHNOLOGY FOR MONITORING

Paper Reports



Using Mobile Phones





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CAPACITY BUILDING TRAINING OF IRRIGATION DEPARTMENT

ANDROID BASED DATA COLLECTION APPLICATION

WHY DIGITAL TECHNOLOGY FOR MONITORING

Paper Reports

- Delay in reporting
- Multiple levels of reporting
- Information flow is one way and not actionable
- Bulky hard copies of reports
- Errors in entry, needs additional scrutiny

Using Mobile Phones

- Almost instantaneous reporting
- Direct reporting
- Information flow is both ways and actionable
- Web-enabled reports
- Field-level checks on quality incorporated

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CAPACITY BUILDING TRAINING OF IRRIGATION DEPARTMENT

ANDROID BASED DATA COLLECTION APPLICATION

WHY DIGITAL TECHNOLOGY FOR MONITORING

Paper Reports

- Printing, tracking forms is tedious for large surveys, changes costly
- Many errors in data collection, entry, manual scrutiny

Using Mobile Phones

- Deployed remotely, tracked in real time, changes easy on the field
- Limited errors due to built in logic flows and validation, Single entry

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**CAPACITY BUILDING
TRAINING OF IRRIGATION DEPARTMENT**
ANDROID BASED DATA COLLECTION APPLICATION

WHY DIGITAL TECHNOLOGY FOR MONITORING

<u>Paper Reports</u>	<u>Using Mobile Phones</u>
<ul style="list-style-type: none"> • Effective monitoring of data quality is complicated and laborious • Requires additional hardware devices for non-text data such as GPS, pictures, audio etc. 	<ul style="list-style-type: none"> • Real time tracking, time/date/GPS features improve monitoring • Single device for GPS, audio, pictures. Easy to integrate, can be used for verification

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**CAPACITY BUILDING
TRAINING OF IRRIGATION DEPARTMENT**
ANDROID BASED DATA COLLECTION APPLICATION

“ FIELD ENUMERATORS USING NEW TECHNOLOGIES NEED ADDITIONAL TRAINING AND SUPPORT. WITH PROPER INSTRUCTION, MOST ORGANIZATIONS HAVE FOUND THAT EVEN POOR, UNEDUCATED ENUMERATORS ARE CAPABLE OF PICKING UP THE SKILLS. ”

TRAINING

COACHING TEACHING KNOWLEDGE DEVELOPMENT LEARN EXPERIENCE SKILLS

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**CAPACITY BUILDING
TRAINING OF IRRIGATION DEPARTMENT**
ANDROID BASED DATA COLLECTION
APPLICATION

KEY PERFORMANCE INDICATORS

- Fortnightly Performance Report will be submitted to DG/PD Office
- Monthly Performance Review



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**CAPACITY BUILDING
TRAINING OF IRRIGATION DEPARTMENT**
ANDROID BASED DATA COLLECTION
APPLICATION


DATA COLLECTION TEMPLATE





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**CAPACITY BUILDING
TRAINING OF IRRIGATION DEPARTMENT**
**ANDROID BASED DATA COLLECTION
APPLICATION**

Questions / Discussion Session




 Thanks for watching 

Presented by:

 **Rizwan Saleem**
ICT Technology Specialist

Shumail Mahmood
Data Analyst

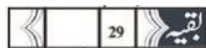
**GIS & INFORMATION SYSTEM DEPARTMENT - ME&IE
CONSULTANT**



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[illegible]

لیکچر ٹرانک وائس کے ذریعے پینل پر پروگرام برائے بھرتی آئی ڈی ذخائر غیر۔ ۱۱ کے تحت جاری منصوبہ جات کی مکمل یا جزئی تکمیل کے لیے ایجنسیوں کو مطلع کیا گیا ہے۔ ایجنسیوں کو اپنی ذمہ داریاں ادا کرنا اور ضروریات کے مطابق ایجنسیوں کو مطلع کیا گیا ہے۔ ایجنسیوں کو اپنی ذمہ داریاں ادا کرنا اور ضروریات کے مطابق ایجنسیوں کو مطلع کیا گیا ہے۔

[illegible][illegible]



ANNEX - H: DATA ACQUISITION FROM KP ZONE

KP Zone - Data Status

Sr.#	District	2019-20		2020-21		2021-22		Total		Pending	Overall Total	Work Start Date	Work End Date	No. of Person Working	Validated & Ready for Dashboard
		WC	WST	WC	WST	WC	WST	WC	WST						
1	Peshawar	52	9	7	8			59	17	0	76	Nov 4, 2021	Nov 5, 2021	9	
2	Mardan	40	9	50	7			90	16	0	106	Nov 6, 2021	Nov 8, 2021	9	
3	Nowshera	28	11	43	20			71	31	0	102	Nov 9, 2021	Nov 10, 2021	9	
4	Swabi	67	7	13	2			80	9	0	89	Nov 11, 2021	Nov 12, 2021	6	
5	Khyber	6	1	13	9			19	10	0	29	Nov 13, 2021	Nov 13, 2021	5	
6	Charsada	71	13	23	0			94	13	2	109	Nov 15, 2021	Nov 18, 2021	6	
7	Hangu	30	14	3	0			33	14	0	47	Nov 19, 2021	Nov 19, 2021	5	
8	Kohat	52	3	18	0			70	3	0	73	Nov 20, 2021	Nov 20, 2021	5	
9	Battagram	15	6	10	16			25	22	0	47	Nov 22, 2021	Nov 22, 2021	4	
10	Buner	16	4	14	12			30	16	0	46	Nov 23, 2021	Nov 23, 2021	4	
11	Bannu	38	2	15	2			53	4	0	57	Nov 25, 2021	Nov 25, 2021	5	
12	Malakand	27	7	18	5			45	12	0	57	Nov 25, 2021	Nov 25, 2021	5	
13	Karak	16	14	19	16			35	30	0	65	Nov 26, 2021	Nov 26, 2021	5	
14	Bajaur	3	1	17	9			20	10	0	30	Nov 27, 2021	Nov 27, 2021	5	
15	Swat	78	47	44	44			122	91	0	213	Nov 27, 2021	Nov 29, 2021	5	
16	Kohistan	8	3	6	6			14	9	0	23	Nov 29, 2021	Nov 29, 2021	4	
17	Upper Dir	15	6	12	8			27	14	0	41	Nov 30, 2021	Nov 30, 2021	4	
18	Orakzai	0	0	1	2			1	2	0	3	Nov 30, 2021	Nov 30, 2021	1	
19	Mohmmand	3	1	19	40			22	41	20	83	Nov 30, 2021	Nov 30, 2021	4	
20	D.I. Khan	419	71	0	0			419	71	44	534	Nov 30, 2021	Nov 30, 2021	4	
21	South W														
22	Shangla														
23	Upper Chitral														

ANNEX - H: DATA ACQUISITION FROM KP ZONE

KP Zone - Data Status

Sr.#	District	2019-20		2020-21		2021-22		Total		Pending	Overall Total	Work Start Date	Work End Date	No. of Person Working	Validated & Ready for Dashboard
		WC	WST	WC	WST	WC	WST	WC	WST						
24	Lower Chitral														
25	Tank														
26	Kurram														
27	Laki Marwat														
28	Lower Dir														
29	North W														
30	Haripur														
31	Abbotabad														
32	Mansehra														
33	Torghar														
Total		984	229	345	206	0	0	1329	435	66	1830				

ANNEX - I: TRAINING COMPLETION CERTIFICATE



TRAINING CERTIFICATE

This certifies that Mr. _____ has successfully completed two days training
on **Android Based Data Collection Application & GIS Based Progress Monitoring Dashboard.**

Held at **Muzaffarabad, AJK** during **02nd to 03rd November** 2021

Team Leader
ME&IEC - NPIWC-II
G3 Engineering Lead Firm
Consultants (Pvt.) Ltd.

National Project Coordinator
FPMU - NPIWC-II

Project Director
AJK - NPIWC-II

ANNEX - J: DELIVERABLES/REPORTING REQUIREMENTS

Deliverables/Reporting Requirements

Sr. No.	Document	Copies	Due
1	Draft Inception Report	8	45 days after the effectiveness of the Consulting services Agreement.
2	Final Inception Report	15	One week after the issuance of comments by the Client on Draft Inception Report
3	Monthly Monitoring Report	10	10 th of the following month
4	Baseline Survey Report	10	4 months after start of the assignment
5	Midline Survey Report	10	In the middle of the assignment
6	Endline Survey Report	10	At the end of the endline survey
7	Quarterly Monitoring and Evaluation Report	10	10 th of the first month of following quarter
8	Annual Monitoring and Evaluation Report	10	During first month of following year
9	Draft Assignment Completion Report	5	At completion of physical works / activities
10	Final Completion Report	25	At completion of works as well as financial transactions
11	Special Reports	10	As and when required